TV-61

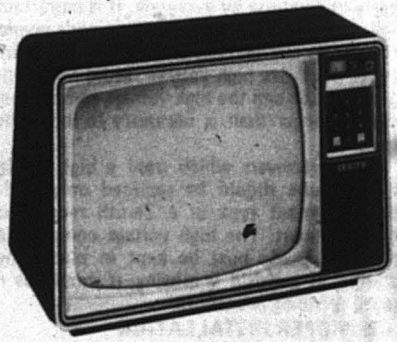
TV-61

ZENITH®

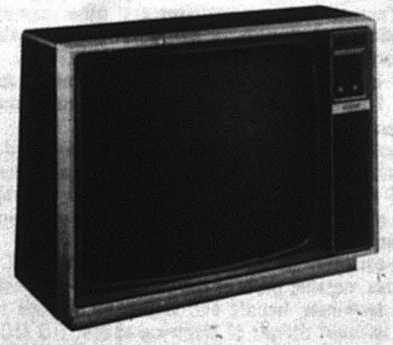
SERVICE MANUAL
TV-61

BT052S

BT092Y



BT124W



BT194E

FOR MODELS USING THE FOLLOWING CHASSIS
5NB1X, 5NB2X, 5NB4X, 5NB5X, 9NB1X, 12YB1X, 12YB3X, 12YB4X, 12YB5X, 19MB2X

ZENITH RADIO CORPORATION
PARTS AND SERVICE DIVISION
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BT052S	I 3,I 4
BT052S1	I 5,I 6
BT052S1	I 5,I 6
BT092Y	I 7
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BT121W,W1	I 8
BT122W	I 9
BT124W	I 10
BT124W1	I 11
BT193W	I 12
BT194W	I 13
5NB1X,5NB2X,5NB4X & 5NB5X	I 14,I 15
9NB1X	I 16
12YB1X,12YB2X	I 17,I 18
12YB3X,12YB4X & 12YB5X	I 19,I 20
19MB2X	J1,J2

PRODUCT SAFETY SERVICING GUIDELINES FOR ZENITH B & W TELEVISION RECEIVERS

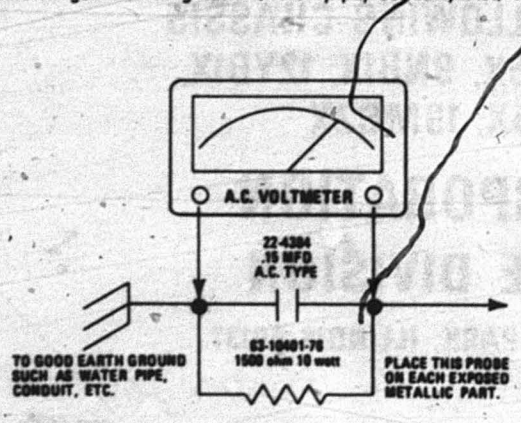
CAUTION: No modification of any circuit should be attempted. Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise increases the risk of potential hazards and injury to the user.
CAUTION: NEVER ATTEMPT TO SERVICE A 9KB4X, 12KB4X, 19LB2X, 22LB2X, 19MB1X AND 22MB1X CHASSIS THAT IS CONNECTED DIRECTLY TO AN AC LINE. MAKE SURE IT IS CONNECTED THROUGH AN ISOLATION TRANSFORMER.
NO MATTER WHICH WAY THE AC PLUG IS INSERTED, A POTENTIAL SHOCK HAZARD IS PRESENT AT CHASSIS GROUND UNLESS AN ISOLATION TRANSFORMER IS USED DURING SERVICING.
One side of the AC input is fused; so, there's a 50% chance of blowing a fuse, or a 50% chance of destroying components and/or test equipment if an isolation transformer is not used. Therefore, DO NOT SERVICE WITHOUT AN ISOLATION TRANSFORMER.
The chassis consists of a single circuit board mounted horizontally in the bottom of the cabinet. All circuit parts are mounted on the board except the Tuners, Customer controls, CRT and Deflection Yoke. The Horizontal Sweep Transformer is also mounted on the chassis circuit board. The board can be slid out of the cabinet without disconnecting and the TV receiver will operate with the board exposed. Screws are not required to hold the board in place. It slides into slots which are molded into the cabinet, and the cabinet back holds it in place.

SAFETY CHECKS

After the original service problem has been corrected, a check should be made of the following:

SUBJECT: FIRE & SHOCK HAZARD

1. Be sure that all components are positioned in such a way to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers shields, strain reliefs, and other hardware have been reinstalled per original design.
3. Soldering must be inspected to uncover possible cold solder joints, frayed leads, damaged insulation (including AC cord), solder splashes or sharp solder points. Be certain to remove all loose foreign particles.
4. Check "across-the-line" capacitor and other components for physical evidence of damage or deterioration and replace if necessary. Follow original layout, lead length and dress.
5. No lead or component should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces. must be avoided.
6. All critical components (shaded on the schematic diagram and parts lists) such as: fuses, flameproof resistors, capacitors, etc., must be replaced with exact Zenith types. Do not use replacement components other than those specified or make unrecommended circuit modifications.
7. After re-assembly of the set always perform an AC leakage test on all exposes metallic parts of the cabinet, the channel selector knobs, antenna terminals, handle and screws to be sure the set is safe to operate without danger of electrical shock. DO NOT USE A LINE ISOLATION TRANSFORMER DURING THIS TEST. Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm 10 watt resistor (63-10401-76), paralleled by 0.15 mfd., 150V AC type capacitor (22-4384) between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination 1500 ohm resistor and 0.15 mfd. capacitor. Reverse the AC plug and repeat AC voltage measurements for each exposed metallic pact. Voltage measured must not exceed 0.75 volts RMS. This corresponds to 0.5 milliamp AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



SUBJECT: IMPLOSION PROTECTION

1. All Zenith picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage during installation. Avoid scratching the tube.
2. Use only Zenith replacement tubes.

SUBJECT: X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of X-radiation. The only potential source of X-rays in current TV receivers is the picture tube. However, this tube does not emit X-rays when the HV is at the factory-specified level. It is only when the HV is excessive that X-radiation can be generated. The basic precaution which must be exercised is to keep the HV at the factory-recommended level. Refer to the X-ray Precaution Label which is located inside each television receiver for the correct high voltage. The proper value is also given in the applicable service manual. Operation at higher voltages may cause a failure of the picture tube or high voltage supply and, also, under certain circumstances, may produce radiation in excess of desirable levels.
2. Only Zenith specified CRT anode connectors must be used.
3. It is essential that the serviceman has available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically against a reference standard, such as the one available at your distributor.
4. When the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. Every time a monochrome chassis is serviced, the brightness should be run up and down while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly. We suggest that you and your service organization review test procedures so that voltage regulation is always checked as a standard servicing procedure, and that the reason for this prudent routine be clearly understood by everyone. It is important to record an accurate high voltage reading on each customer's invoice.
5. When trouble shooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage compartment. Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.
6. In all earlier model receivers which used a high voltage rectifier vacuum tube, that tube should be replaced only with a Zenith recommended replacement type or a Zenith recommended solid state rectifier replacement. The high voltage compartment and all metal shields, where used, must be kept in place whenever the chassis is operating. If a shield is missing, it should be replaced at once as a standard servicing procedure.

SUBJECT: TIPS ON PROPER INSTALLATION

1. Never install any receiver in a closed-in recess, cubbyhole or closely fitting shelf space.
2. Never install receiver over, or close to a heat duct, or in the path of heated air flow.
3. Avoid conditions of high humidity such as: Outdoor patio installations where dew is a factor; near steam radiators where steam leakage is a factor.
4. Avoid placement where draperies may obstruct rear venting. Customer should also avoid use of decorative scarves or other coverings which might obstruct ventilation.
5. Wall and shelf mounted installations must use the factory approved mounting kit and mounting instructions.
6. A receiver mounted to a shelf or platform must retain its original feet or the equivalent thickness in spacers for adequate air flow from the bottom. Bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage tests on customized insatllations.
7. Caution customers against the use of receiver on a sloping shelf or in a tilted position, unless properly secured.
8. In using a roll-about cart receiver, it should be stable in its mounting to the cart. Caution customer on trying to roll a cart with small casters across thresholds or deep pile carpets.
9. Caution customers against the use of a cart or stand that has not been "listed" by Underwriters' Laboratories, Inc. for use with their specific model of television receiver.

MODEL AND CHASSIS INFORMATION

MODEL	STYLE	CHASSIS	CRT	VHF TUNER	UHF TUNER	TUNING SYSTEM
BT051B	TV Only AC/DC	5NB5X	5VAHP4	175-2038 U/V		
BT051B1	TV Only AC/DC	5NB4X	5VAHP4	175-2238	175-2239	
BT051B2*	TV Only AC/DC	5NB5X	5VAHP4	175-2038 U/V		
BT051B3*	TV Only AC/DC	5NB4X	5VAHP4	175-2238	175-2239	
BT052S	Combo AC/DC	5NB2X	5VAHP4	175-2038 U/V		
BT052S1	Combo AC/DC	5NB1X	5VAHP4	175-2238	175-2239	
BT052S2*	Combo AC/DC	5NB2X	5VAHP4	175-2038 U/V		
BT052S3*	Combo AC/DC	5NB1X	5VAHP4	175-2238	175-2239	
BT092Y	AC/DC	9NB1X	9VASP4 9VATP4	175-2242	175-2231-06	
BT120A	AC	12YB1X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT120A1	AC	12YB4X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT120Y	AC	12YB1X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT120Y1	AC	12YB4X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT121W	AC	12YB1X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT121W1	AC	12YB4X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	
BT122E	AC/DC	9NB1X	9VASP4 9VATP4	175-2242	175-2231-06	
BT124W	AC	12YB3X	12VCBP4 12VCAP4	175-2038 U/V		175-2260
BT124W1	AC	12YB5X	12VCBP4 12VCAP4	175-2038 U/V		175-2260
BT193E	AC	19MB2X	19VKAP4 19VKCP4	175-1732-10A	175-5120-01	
BT194E	AC	19MB2X	19VKAP4 12VKCP4	175-2038 U/V		175-2261
BT820C	AC	12YB1X	12VCBP4 12VCAP4	175-1732-10	175-5120-07	

*New Side Bracket

CHASSIS SPECIFICATIONS

CHASSIS	OPERATING VOLTAGE	OVERLOAD PROTECTION (A.C. LINE)	NOMINAL POWER	OPERATING CURRENT	NOMINAL HIGH VOLTAGE	POWER TRANSFORMER
5NB1X	100-130 VAC 8-15 VDC	Thermal Fuse	17 Watts	180-mA Max	6.7 kV	Yes
5NB2X	100-130 VAC 8-15 VDC	Thermal Fuse	17 Watts	180-mA Max	6.7 kV	Yes
5NB4X	100-130 VAC 8-15 VDC	Thermal Fuse	17 Watts	180-mA Max	6.7 kV	Yes
5NB5X	100-130 VAC 8-15 VDC	Thermal Fuse	17 Watts	180-mA Max	6.7 kV	Yes
9NB1X	120 VAC/12 VDC	4.0 Amp. Std.	28 Watts	0.3A Max	12.0 kV	Standard
12YB1X	120 VAC	1.0 Amp.	26 Watts	0.35A Max	13.8 kV	No
12YB3X	120 VAC	1.0 Amp.	26 Watts	0.35A Max	13.8 kV	No
12YB4X	120 VAC	1.0 Amp.	26 Watts	0.35A Max	13.8 kV	No
12YB5X	120 VAC	1.0 Amp.	26 Watts	0.35A Max	13.8 kV	No
19MB2X	120 VAC	1.0 Amp.SloBlo	45 Watts	0.6A Max	20.0 kV	No

BT052S POWER SUPPLY AND CHARGER

The 5" sets are designed to work on either six D size batteries, an optional internal rechargeable battery, an external car/boat cord or an external AC adapter. External power enters via an input connector on the back of the set. When no input is connected, pin 1 and 3 on the input jack are closed connecting the internal batteries for operating. Switch S701 remains open when non-rechargeable batteries are used, and closed when rechargeables are used. S701 connects a battery charger into the circuit when closed.

When an external input is connected, pins 1 and 3 are opened. Diode CR701 acts to prevent reverse polarity voltage from entering the set. If rechargeable batteries are being used and the TV set is off, the input voltage will be above 14 volts activating the 11 volt zener CR702 and the series charging action of Q701 and QX702.

The power source is connected to the emitter of QX705 which acts as the series pass element for regulation and switching power to the radio or TV. When no voltage is present at the two electrical switching ports, Q703, Q704 and QX705 remain off preventing voltage from reaching the set.

When a positive voltage is applied to the electrical switching ports, Q703, Q704 and QX705 are forced into conduction. Once these transistors are in conduction, zener CR704 turns on providing a reference voltage. R708 acts as a voltage sensor and provides B+ adjustment which should be 6.5 volts in TV mode with maximum beam and contrast on screen. The circuit itself is essentially a positive dual of the circuit used in the 12MB1X chassis and functions identically. Likewise, as in that circuit, if input voltage drops, CR703 will conduct, switching the circuit into an active filter. The circuit also has built-in short circuit protection.

AC OPERATION

The detachable AC Adapter Unit allows you to operate your set on standard AC current. To use the AC Adapter:

1. Insert the cord (small end) into the power jack on the back of the set. Press firmly.
2. Plug the AC Adapter Unit with polarized plug (large end) into any wall outlet providing 120 volt, 60 hertz AC current.

AUTO 12-VOLT DC OPERATION

A DC Car Cord is supplied to operate set on a 12-VOLT NEGATIVE GROUND auto electrical system. To use the DC Car Cord:

1. Disconnect the AC Adapter Unit from the AC wall outlet and the plug from the power jack on the back of the set.
2. Insert the DC Car Cord (small end) into the power jack on the back of the set. Press firmly.
3. Insert the DC Car Cord into your car or camper's cigarette lighter socket. Press firmly.

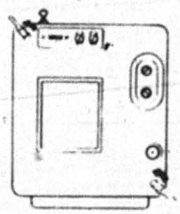
CAUTION: Before using the DC Car Cord make certain that the system is 12-VOLT NEGATIVE GROUND. If the DC system is POSITIVE GROUND the set will not operate.

BATTERY PACK OPERATION

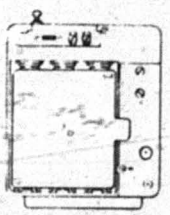
The optional battery pack fits neatly inside the TV cabinet. Recharge system automatically regulates line voltage to prevent damage to the battery pack from overcharging. To install the battery pack:

NOTE: Zenith recommends charging the battery pack, before using for the first time, to ensure maximum performance. See Recharge Instructions.

1. Remove the two cabinet corner screws on the back of the set and lift off the back cover.



2. Holding the battery pack with the tab pointing to the right, place the negative contact under the springs at the top of the cabinet and push up and in.



3. Check to be sure battery pack is securely in place.
4. Replace the back cover.

TO RECHARGE THE BATTERY PACK:

1. Set must be OFF. A built-in lock-out switch prevents battery recharge when set is in operation.
2. Insert AC Adapter plug (small end) into power jack on the back of the set.
3. Insert AC Adapter Unit with polarized plug into AC wall outlet.
4. Battery Pack will reach full power in 18 to 24 hours.

BATTERY OPERATION/APPROXIMATE PLAYTIME*

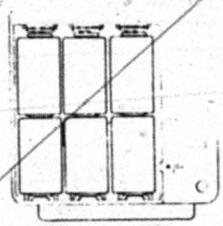
	Rechargeable Battery Pack	"D" Cell Carbon	"D"Cell Alkaline
TV	3 to 3½ hours	1 hour	10 hours
Radio	40 hours	35 hours	75 hours

*Actual playtime may vary depending on age and condition of batteries used.

D-CELL BATTERY OPERATION

The 5" portable sets may also be operated with 6 alkaline "D" batteries. To install:

1. Remove the two cabinet corner screws on the back of the set and lift off the back cover.
2. Insert the batteries in three rows of two with positive contacts down.



3. Make certain the batteries are tightly locked in place and positive and negative contacts are as shown.
4. Replace the back cover.

NOTE: Automatic Recharge Safety Switch blocks recharge function when non-rechargeable flashlight batteries are in place.

SO57 BATTERY PACK NOTES:

1. With proper care and maintenance, the battery pack will usually last up to five years.
2. When the battery pack is new, playtime is 3½-4 hours for the TV and 20 - 50 hours for the radio.

NOTE: Battery pack should be recharged before using the first time to ensure maximum performance.

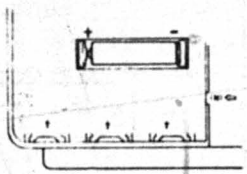
3. A battery pack can be recharged approximately 100 times. After 100 recharges, playtime cuts down to 1½-2 hours for the TV and 10 - 25 hours for the radio.
4. Constant use of high brightness levels and/or high volume levels may reduce the useable playtime available.
5. The battery pack needs 18 - 24 hours of recharge to reach full power.
6. The battery pack should never be fully drained during use as this will destroy battery cells.
7. The battery pack must be recharged every three months, (even though the set may not have been used) to keep it fresh.

INSTALLING THE CLOCK BATTERY

Power for the clock and Time Set Control is independent of all other power sources for TV or Radio operation.

A special AA battery is provided. To install:

1. Remove the two cabinet corner screws on the back of the set and lift off the back cover.
2. Insert the "AA" battery in the horizontal position with the positive end of the battery to the positive contact (left) in the battery compartment. Push-in firmly to lock battery in place.



3. The digital readout on the clock should now be visible. If not, check to be sure the battery is touching the correct positive and negative contacts.
4. Replace the back cabinet cover.

SELECTING OPERATION MODE

The Operation Mode Selector located on the right side of the cabinet lets you set TV reception for VHF Lo (channels 2 through 6), VHF HI (channels 7 through 13), UHF (channels 14 through 83), FM radio, or AM radio. Turn the control knob to the desired operation.

BTO52S ANTENNA SYSTEM

Model BTO52S has a built-in monopole antenna for VHF/UHF operation as well as FM. There is a slide switch to select either the monopole antenna or a pair of screw terminals for 300-ohm balanced antennas. (Figure 1)

An internal balun is used to convert the 300-ohm balanced signal to 75-ohm unbalanced to match the UHF tuner's 75-ohm antenna input to either the TV tuner input or the FM radio antenna input. The UHF tuner has a built-in antenna splitter which separates the VHF signal, which is fed to the VHF antenna input terminal.

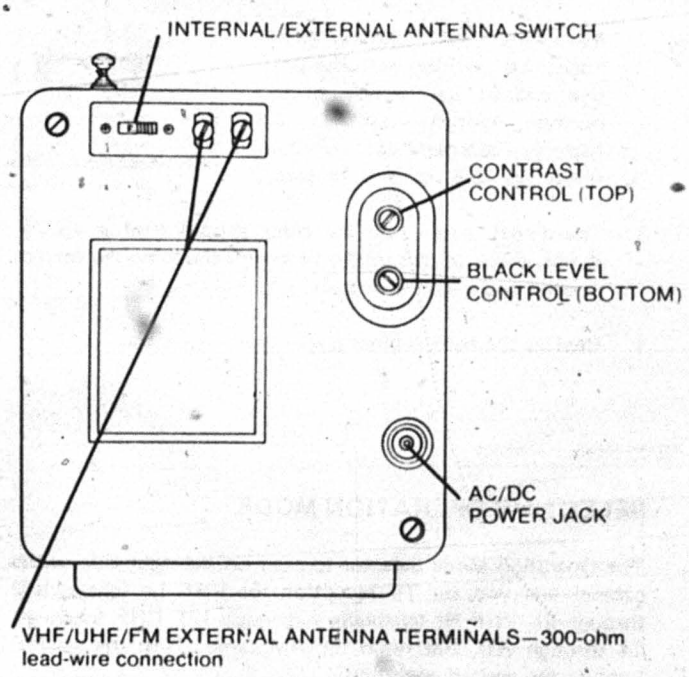
The balun was selected to be as low an insertion loss as possible. The insertion loss is less than 2-dB even at Channel 83. The balun is switched out when using the monopole to avoid unnecessary losses.

ADJUSTING THE ANTENNA

The built-in monopole antenna for VHF/UHF TV and FM Radio reception is located on the top of the set. Fully extend the antenna by pulling straight up. Then swivel it around to obtain the best possible picture. When the set is being carried or not in use, push the antenna back into the cabinet to avoid damage.

NOTE: When using the monopole antenna for VHF/UHF TV or FM Radio reception in primary signal areas, the Internal/External Switch located on the back of the set should be in the Internal position. To receive available VHF/UHF TV or FM Radio signals from an outdoor antenna use the 300-ohm lead wire terminals provided. When using an outdoor antenna the Internal/External Switch should be in the External position.

BACK OF SET: (EXTERNAL)



BACK OF SET: (INTERNAL)

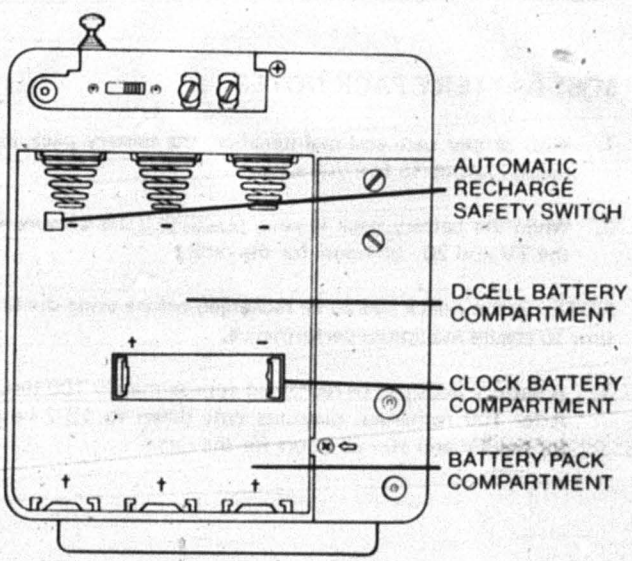


FIGURE 1

BTO52S CLOCK

The clock used in the 5 inch TV is of the LCD type and is powered by a 1.5 volt penlite cell. The penlite cell should be able to power the clock for at least three years and possibly five years.

The clock is a self-contained module with a crystal time base. All that is necessary for operation is the addition of switches and battery. The clock is back lit when plugged in the wall and lit on demand by pushing the lamp button when used with batteries. The clock has a built-in sleep timer and alarm tone oscillator. A snooze button is also provided for delaying the wake up alarm.

When Q709, through the grounding of R714 or Q710, is energized Q711 activates supplying power to the audio. This triggers the 6.5 volt regulator through Q708. This is due to the audio amplifier being all that turns on during the tone alarm. (Figure 2)

Q711 is also used to limit the voltage available to the audio output. This is necessary when the TV is run on a car cord. When operated in this manner, the input voltage may climb to 14.5 volts. However the voltage available to the audio output is limited to 10.5 volts due to the zener diode in the Q711 base.

Q709 is used to turn on the TV or radio with a signal from the clock alarm or sleep output. When the tone alarm is selected, the 6.5 volt regulator is disabled. This way, when the alarm sounds, only the audio output will activate. With the tone alarm set, the sleep timer can be utilized as Q707 will re-activate the 6.5 volt supply during the sleep timer operation.

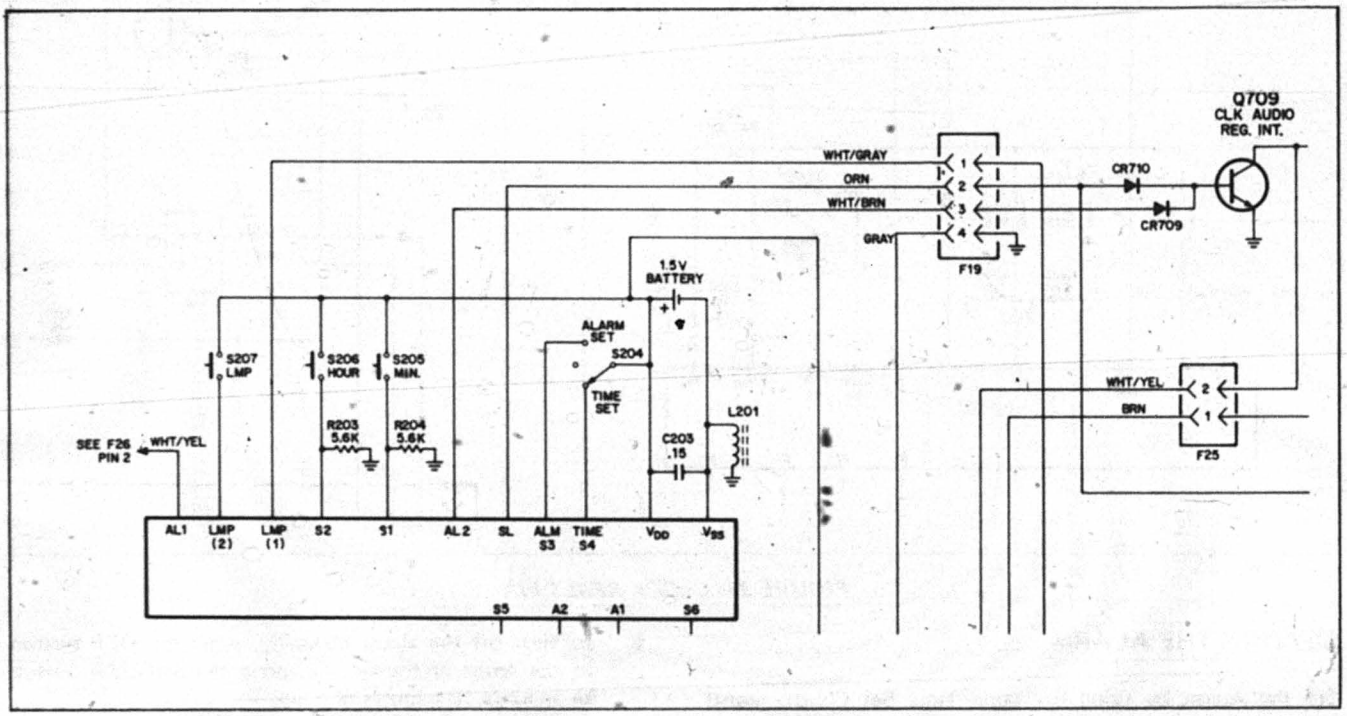


FIGURE 2 – BTO52S CLOCK MODULE & ASSOCIATED CIRCUITRY

SETTING THE CLOCK

The BTO52S sets are equipped with a 24 hour AM/PM digital clock. When plugged into a wall outlet for AC operation, or when used with the DC Car Cord, the clock face, TV and Radio Tuning Indicators are illuminated with a special back-light. When operating on battery power the Dial Light button, located on the right side of the cabinet, must be pressed and held-in to activate the clock backlight.

TO SET THE CLOCK

Locate the Time Set Control panel on the right side of the cabinet. The Set Switch should be in the NORMAL (center) position for everyday operation. To set each special function move the Set Switch to the right or left as instructed. When the special function is completed move the Set Switch back to the NORMAL position.

1. Push the Set Switch to the TIME SET position.

NOTE: the Clock will not run with the Set Switch in the Time Set position.

2. Set the correct hour by pressing the HOUR button. Press each time the hour is to advance. You may have to go through a complete 12 hour cycle to set the correct AM or PM time.
3. Set the minutes by pressing the MIN. button just as you did the HOUR button.
4. To set the exact time and start the clock running, set the minute slightly ahead of the correct time. Then move the Set Switch back to the Normal (center) position precisely when the time signal (broadcast, telecast or telephone) is heard. Your clock should now indicate the exact AM or PM time.

NOTE: When the Set Switch is returned to the Normal position the dots (colon) on the clock face will start flashing at one second intervals.

BTO52S CLOCK RESET BY STATIC DISCHARGE

There is a circuit modification that may reduce the incidence of clock reset to 12:00, or may reduce the chance of set "turn-on" because of static discharge when the set is touched.

The modification is made simply by unsoldering either lead of CR709 and either lead of CR710 and inserting a 10K-Ohm 1/4W resistor (Zenith part no. 63-10235-06) in series with each diode (CR709 and CR710).

Any set exhibiting a clock reset problem should have these resistors added if they do not already exist.

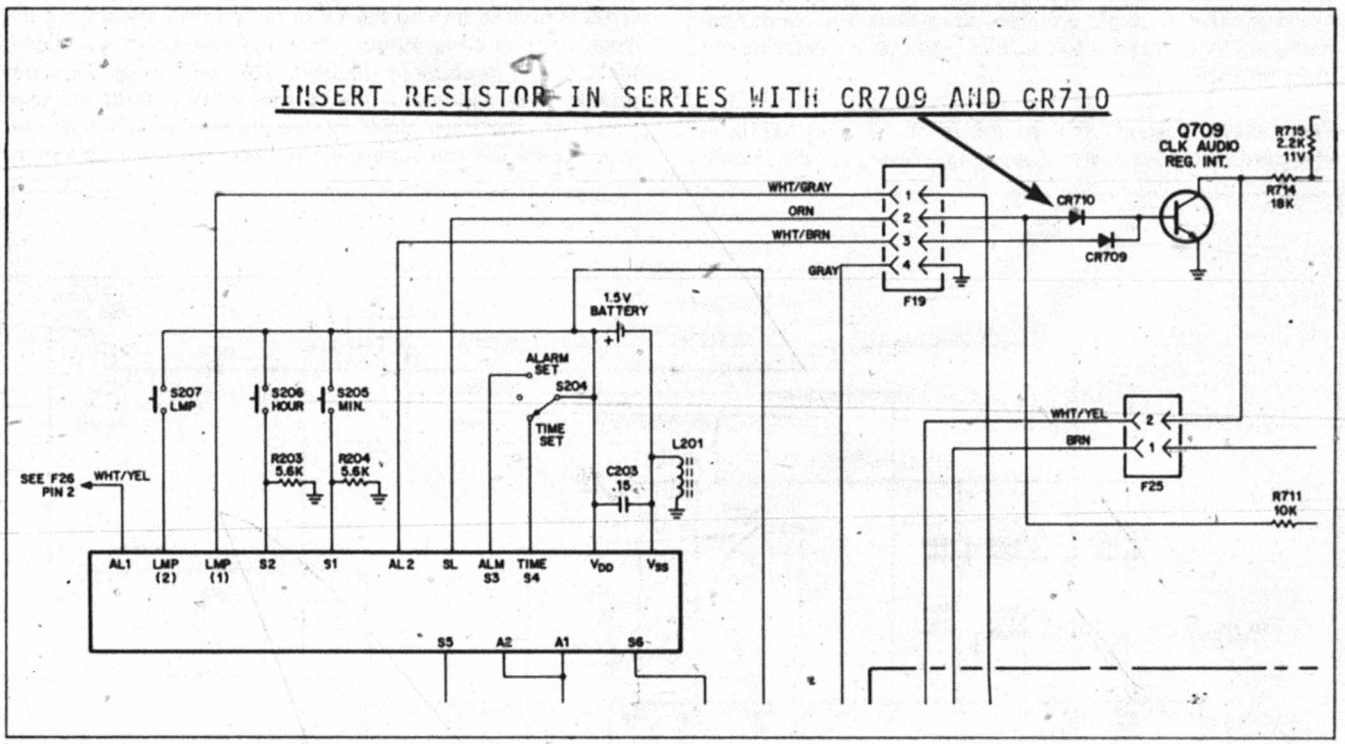


FIGURE 3 – CLOCK RESET FIX

SETTING THE ALARM

Set the Alarm by using the same Time Set Control panel used for setting the clock. To set the alarm:

1. Press the ALARM button on the front of the cabinet. The button will remain in the depressed (in) position.
2. Move the Set Switch on the Time Set Control panel from the NORMAL (center) position to the WAKE SET position.

NOTE: The clock will show the last entered Wake Set or Alarm time, and a flashing Treble Clef Sign 𝄞 will appear on the clock face. Normal operation of the clock is not affected.

3. Set the hour and minutes in the same way you set the clock by pressing the HOUR and MIN. buttons respectively.
4. Move the Set Switch back to the NORMAL (center) position. The programmed alarm time is now set and the Treble Clef Sign will stop flashing and remain on.
5. At the pre-set time an electronic "beep" tone will begin. The tone will continue at one second intervals for 12 minutes before automatically turning off.

NOTE: Snooze Control cannot be activated after *automatic* turn off of alarm.

6. To turn off the alarm manually, press the OFF button on the front of the set. Or, press the SNOOZE button for an extra 10 minutes of sleep.

To re-program the ALARM function for same time/next day operation: Press the OFF button and then press the ALARM button again.

USING THE SNOOZE CONTROL

The Snooze control time is pre-set for a 10 minute period. It cannot be varied, but can be repeated indefinitely after each 10 minute time period has elapsed.

TO SET AUTO WAKE UP

To program the BTO52S to wake you to music or your favorite TV show use the same Time Set Control panel used for setting the clock.

1. Turn the Operation Mode Selector on the right side of the cabinet to TV or Radio.
2. Press the AUTO button on the front of the cabinet. It will remain in the depressed (in) position.
3. Move the Set Switch on the Time Set Control panel from the NORMAL (center) position to the WAKE SET POSITION.

NOTE: As in setting the alarm, a flashing Treble Clef Sign 𝄞 will appear on the clock face.

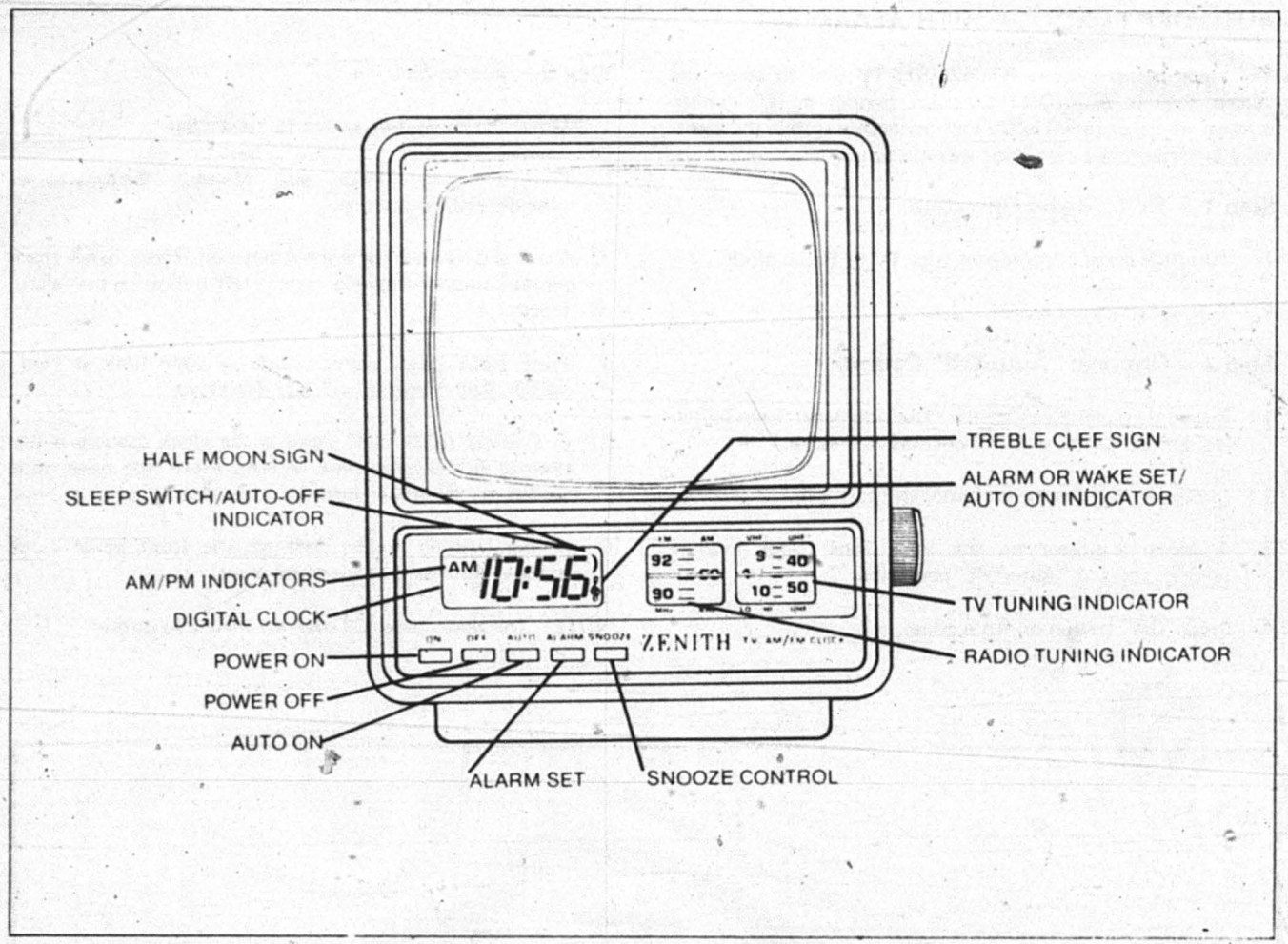


FIGURE 4 – BTO52S FRONT PANEL DISPLAY

4. Set the hour and minutes in the same way you set the clock by pressing the HOUR and MIN. buttons respectively.
5. Move the Set Switch back to the NORMAL (center) position. The Wake up time is now set and the Treble Clef Sign will stop flashing and stay on until the preset time has arrived.
6. At the preset time the TV or Radio (whichever you chose) will turn on automatically.
7. To turn the set off, press the OFF button.

SLEEP SWITCH/AUTO OFF

To program the BTO52S (while the set is ON) to turn itself OFF automatically after 59 minutes of operation, use the same Time Set Control panel used for setting the clock.

1. The Set Switch on the Time Set Control panel should be in the NORMAL (center) position.
2. Press the SLEEP SWITCH button on the Time Set Control panel. A HALF MOON Sign) will appear on the clock face.
3. Press the Off button on the front of the set.

NOTE: Set may be turned On and SLEEP SWITCH activated simultaneously by pressing the Sleep Switch button only. For automatic turn off, make sure Off button is depressed.

4. At the end of the 59 minute SLEEP SWITCH cycle the set will turn off automatically.
5. To cancel the SLEEP SWITCH/AUTO-OFF function, press the SLEEP/SNOOZE CANCEL button. The set will turn off, but the Half Moon Sign) will remain visible for the duration of the pre-set (59 min.) time.

CAUTION: Should you accidentally press the SNOOZE button on the front of the set (while the set is off) the set will turn on automatically. In this instance the normal function of the OFF button is electronically bypassed and cannot be used to turn the set off. There is only one way to turn the set off:

1. The Set Switch on the Time Set Control panel should be in the NORMAL (center) position.
2. The set should be off with the OFF button in the depressed (in) position.
3. Press the SLEEP/SNOOZE CANCEL button located on the right side of the cabinet. The set will turn off and be ready for normal operation.

AUTO/OFF FUNCTION WITH ALARM SET

The steps below allow a BT052S(S1) TV user to enjoy the "Sleep Switch Auto/Off" function (automatic 59 minute turn-off of TV or radio) while simultaneously setting the alarm for a predetermined automatic wakeup time.

Step 1 – TV or Radio Operation

1. Turn side panel selector switch to TV or Radio mode.
2. Turn set on (front panel).

Step 2 – Optional "Auto/Off" Control

1. Press side panel Sleep switch. The side panel Sleep switch is a contact switch and will not stay depressed.
2. In 59 minutes, the set (or radio) will turn off.
3. A Moon indicator on the front panel clock module signifies set is in "Auto/Off" condition.
4. Press "Off" button on front panel.

Step 3 – Alarm Set

1. Move side panel slide switch to "Wake Set".
2. Press side panel "Hour" and "Minutes" buttons to set time desired for wakeup.
3. Move slide switch to normal position. Front panel clock module should display a treble cleff indicating that alarm is set.
4. Press front panel alarm switch at same time as "On" switch. Both switches will stay depressed.
5. A flashing treble cleff signifies the clock module is displaying the wakeup time. Always move side panel slide switch to "Normal" position after setting wakeup time.
6. A non-flashing treble cleff on the front panel clock module signifies that the alarm is set.

NOTE: The alarm tone will override the audio output.

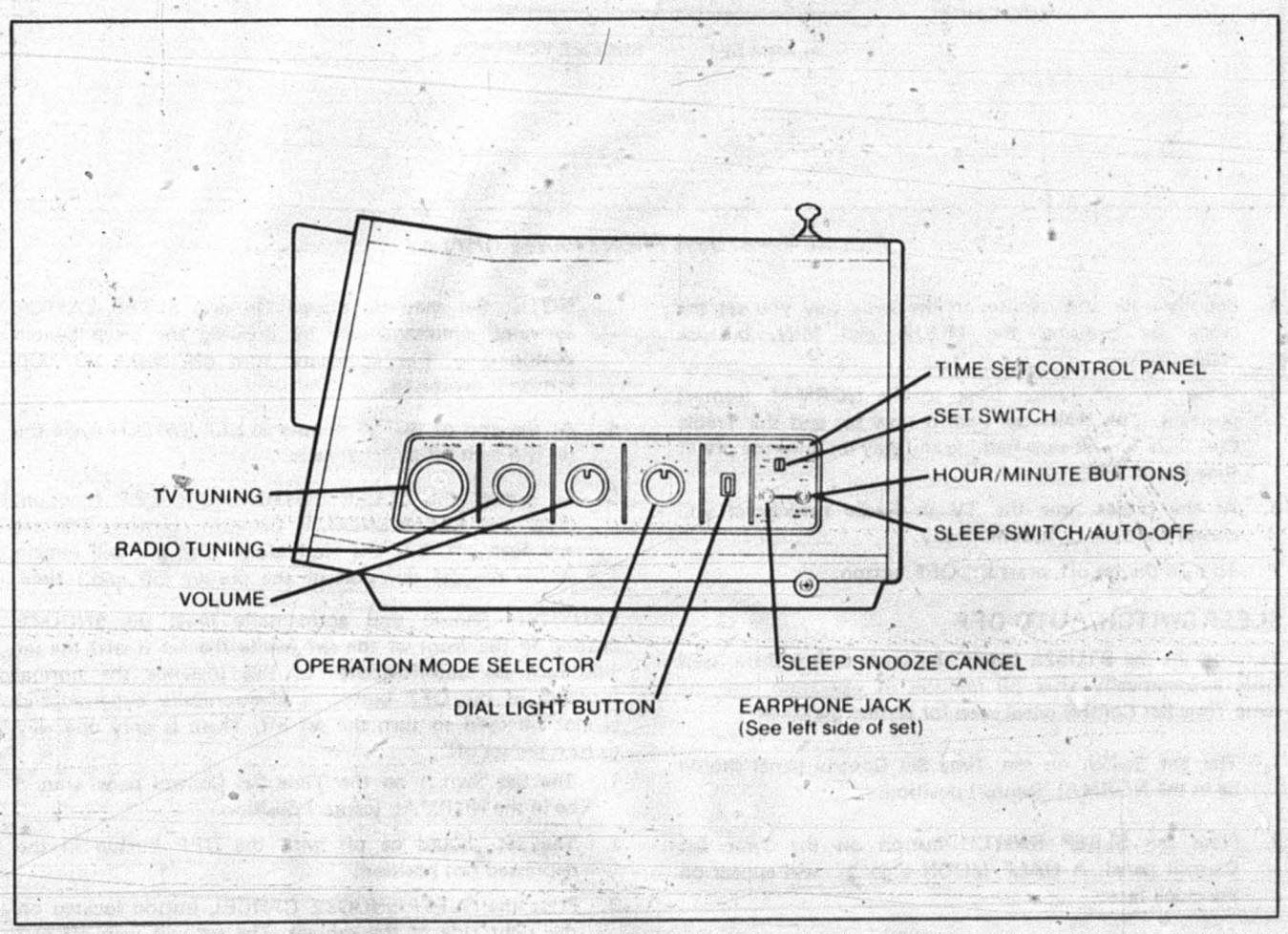


FIGURE 5 – BT052S SIDE PANEL DISPLAY

5NB1X / 5NB2X DISASSEMBLY PROCEDURE

1. Remove the two cabinet corner screws on the back of the set and lift off the back panel. (Figure 6)

2. Remove the rechargeable battery pack by pushing up and sliding bottom out. (Figure 7)

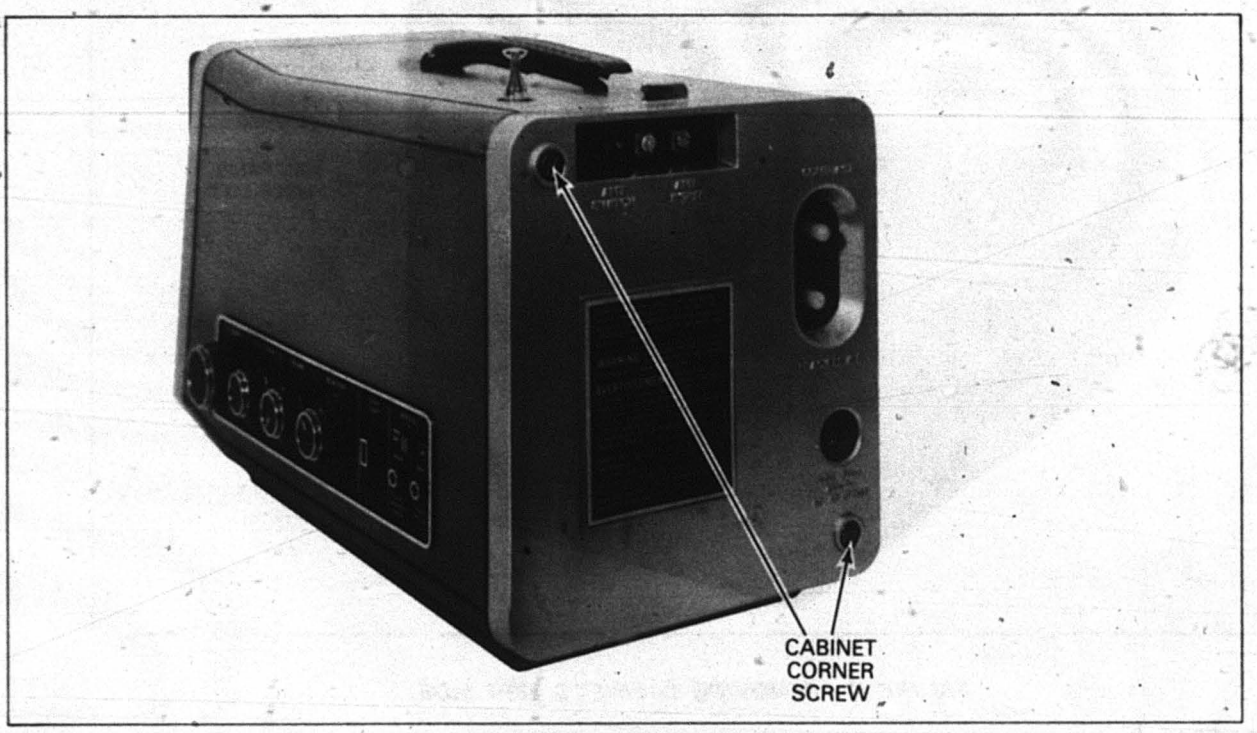


FIGURE 6 – REMOVING BACK PANEL

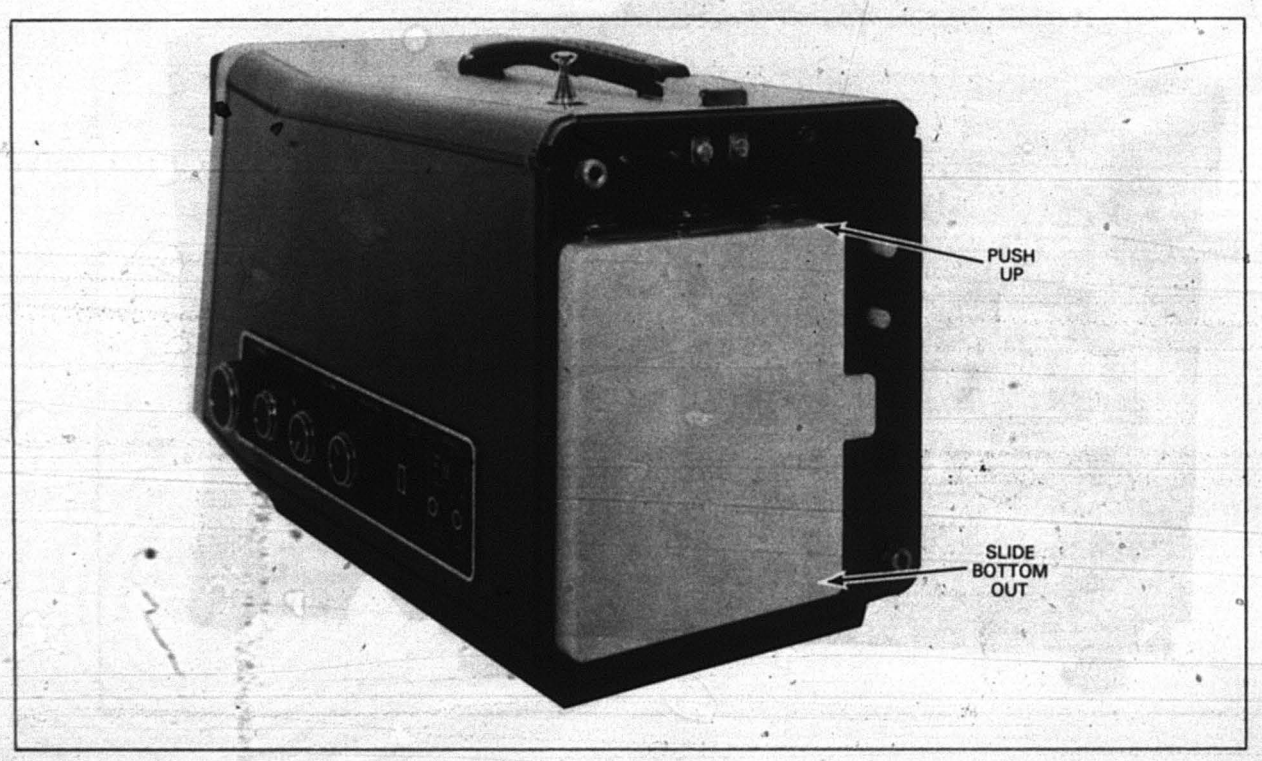


FIGURE 7 – REMOVING BATTERY PACK

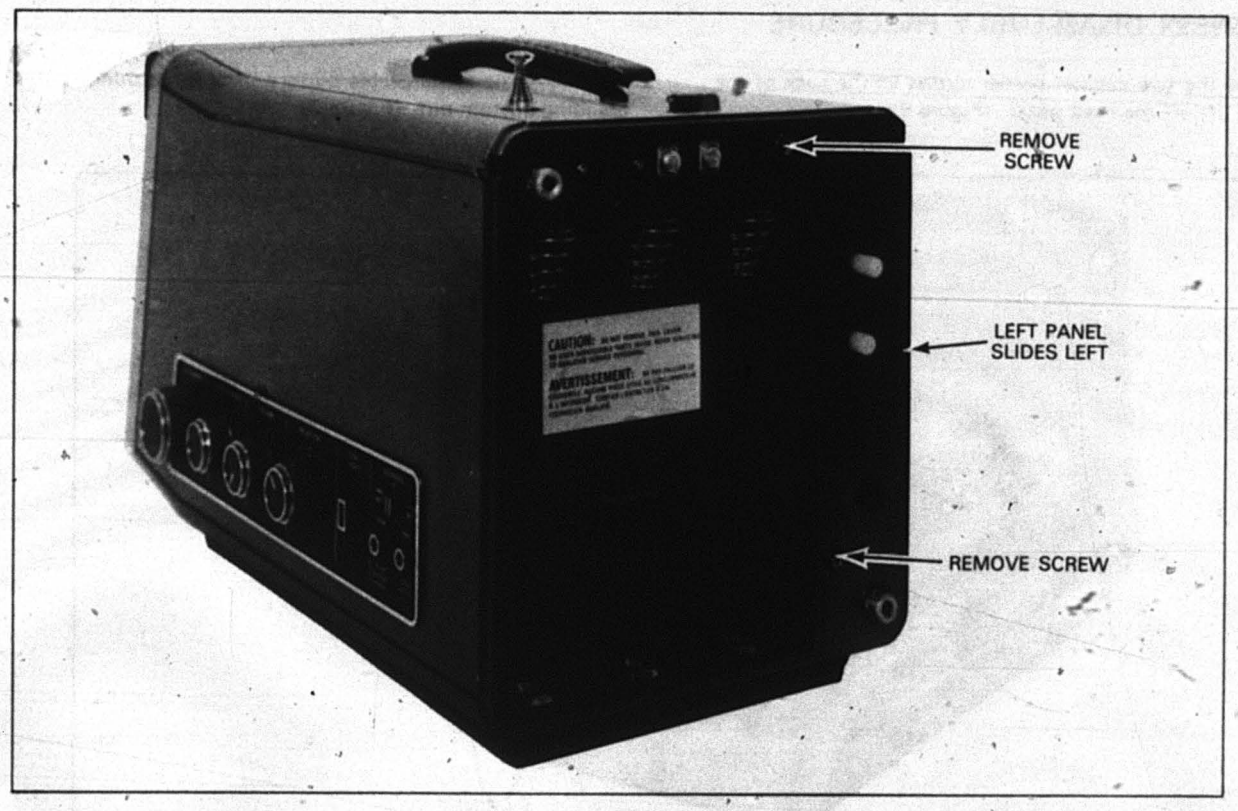


FIGURE 8 – REMOVING CABINET'S LEFT SIDE

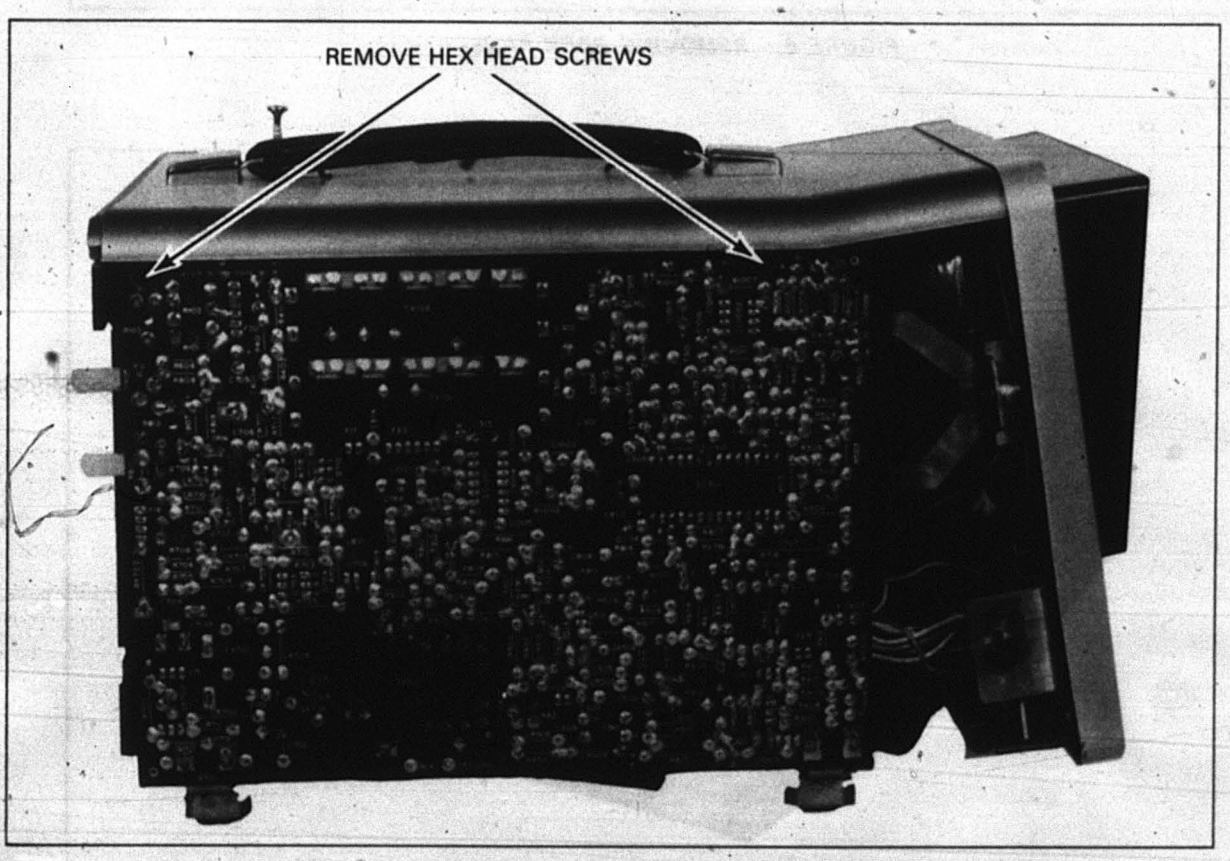


FIGURE 9 – LEFT SIDE REMOVED

3. To remove the cabinet's left side, remove the two Phillips type screws from the back of the set. (Figure 8) Slide left panel to the left and pull.

4. To remove the large 5NB1X chassis, remove two hex head screws from the top of the circuit board and fold the board down away from set, laying it flat. (Figures 9 & 10)

5. Connectors should be removed to allow the chassis to move more freely.

6. The CRT must be removed by removing the hex head screw which is along the left side of CRT. Removing this screw will release ground leads, a metal retaining spring which wraps around the CRT, and the retaining spring holder. (Figure 10)

7. Remove CRT socket and push CRT gently from the front towards the back being careful to release the retaining spring from the retaining spring holder which is positioned on the right side of the CRT. (Figure 11)

8. Remove the anode lead and set CRT to the side.

At this point all the circuits can be reached for repair. However, the power board can be removed by removing the four hex nuts on the radio metal bracketry (Figure 12) and popping off the control knobs. The top-front section of the cabinet will now pull away from side-bottom-back section.

Reassemble set by reversing the procedure.

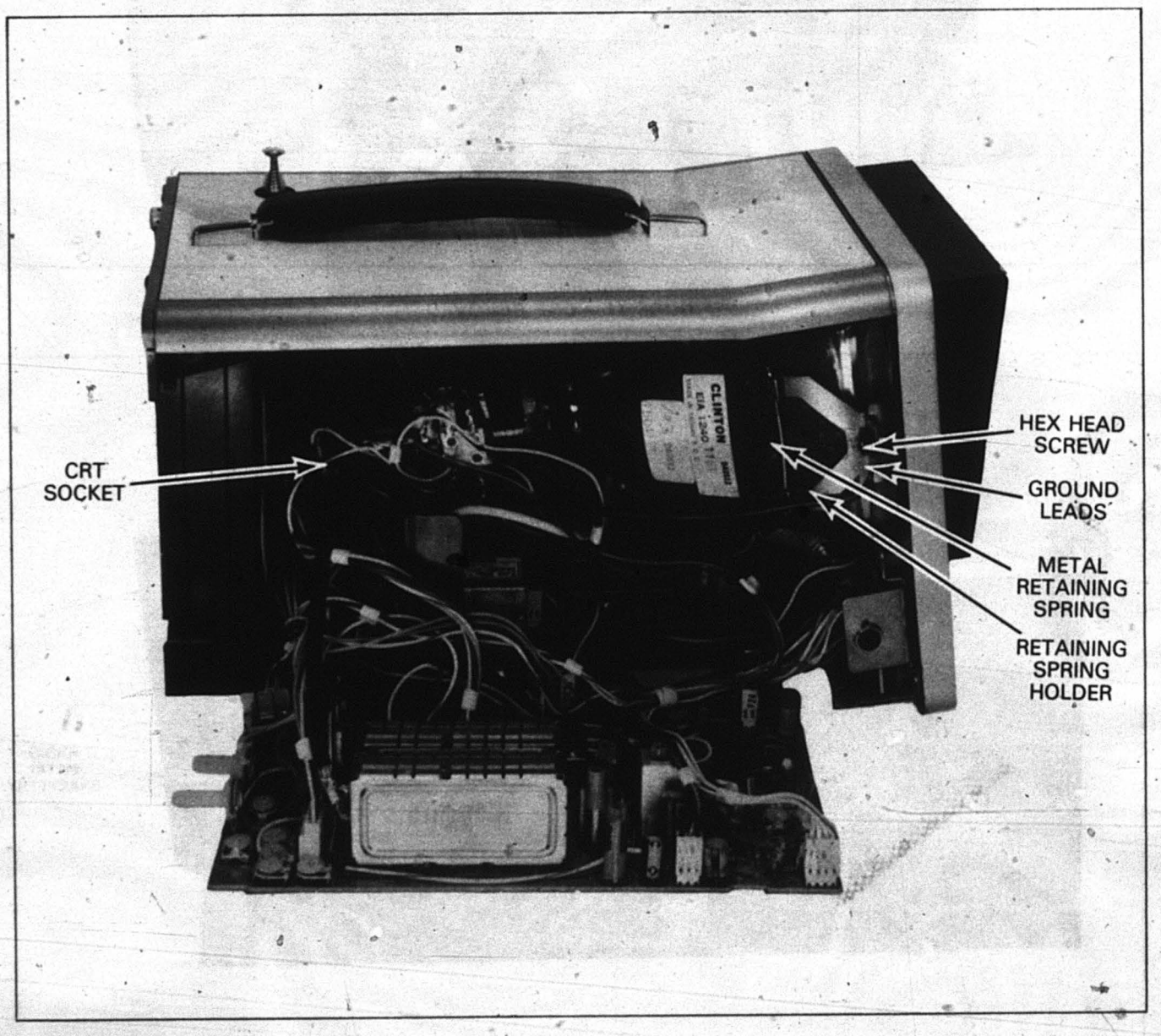


FIGURE 10 – 5NB1X CHASSIS

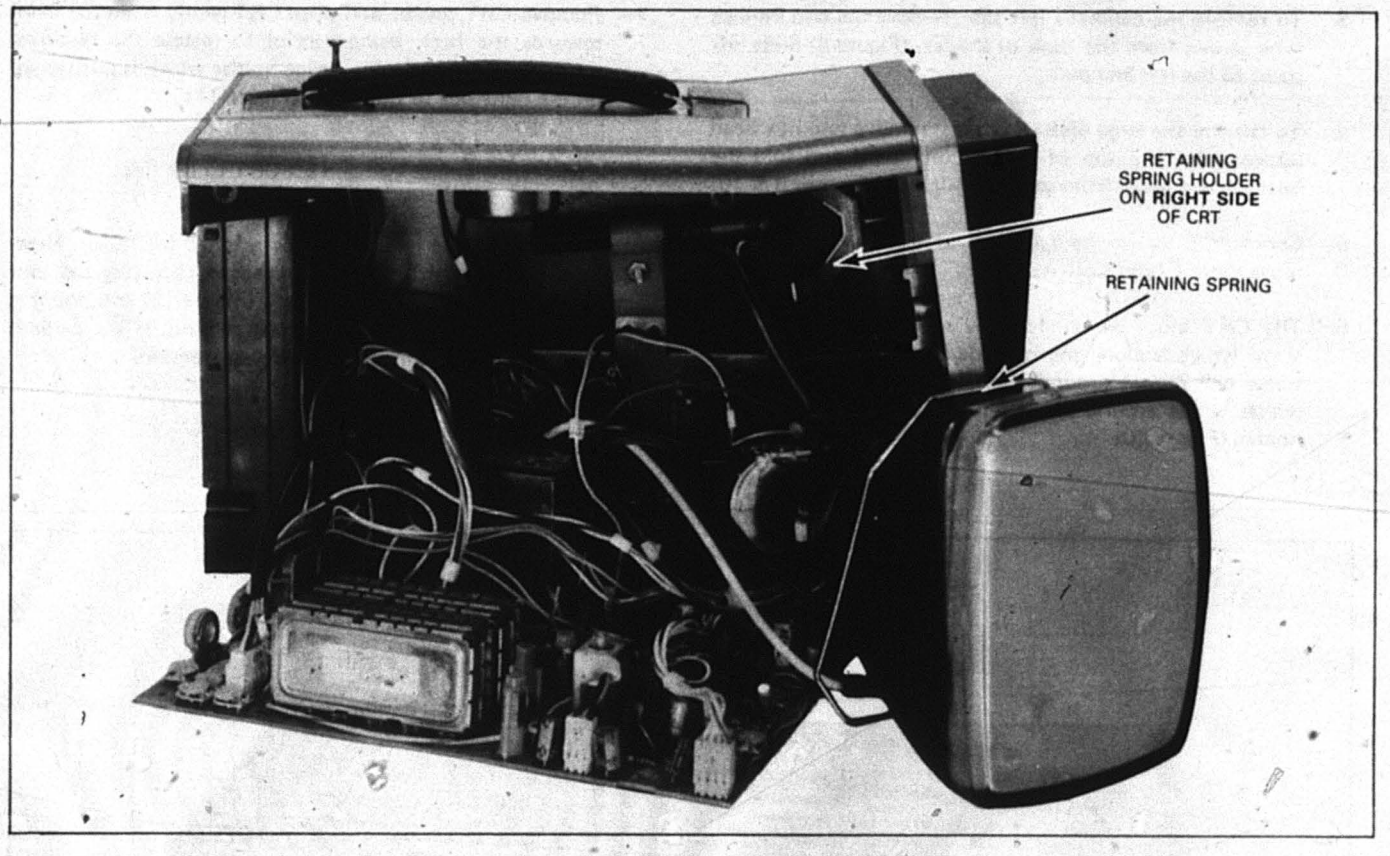


FIGURE 11 – CRT REMOVED

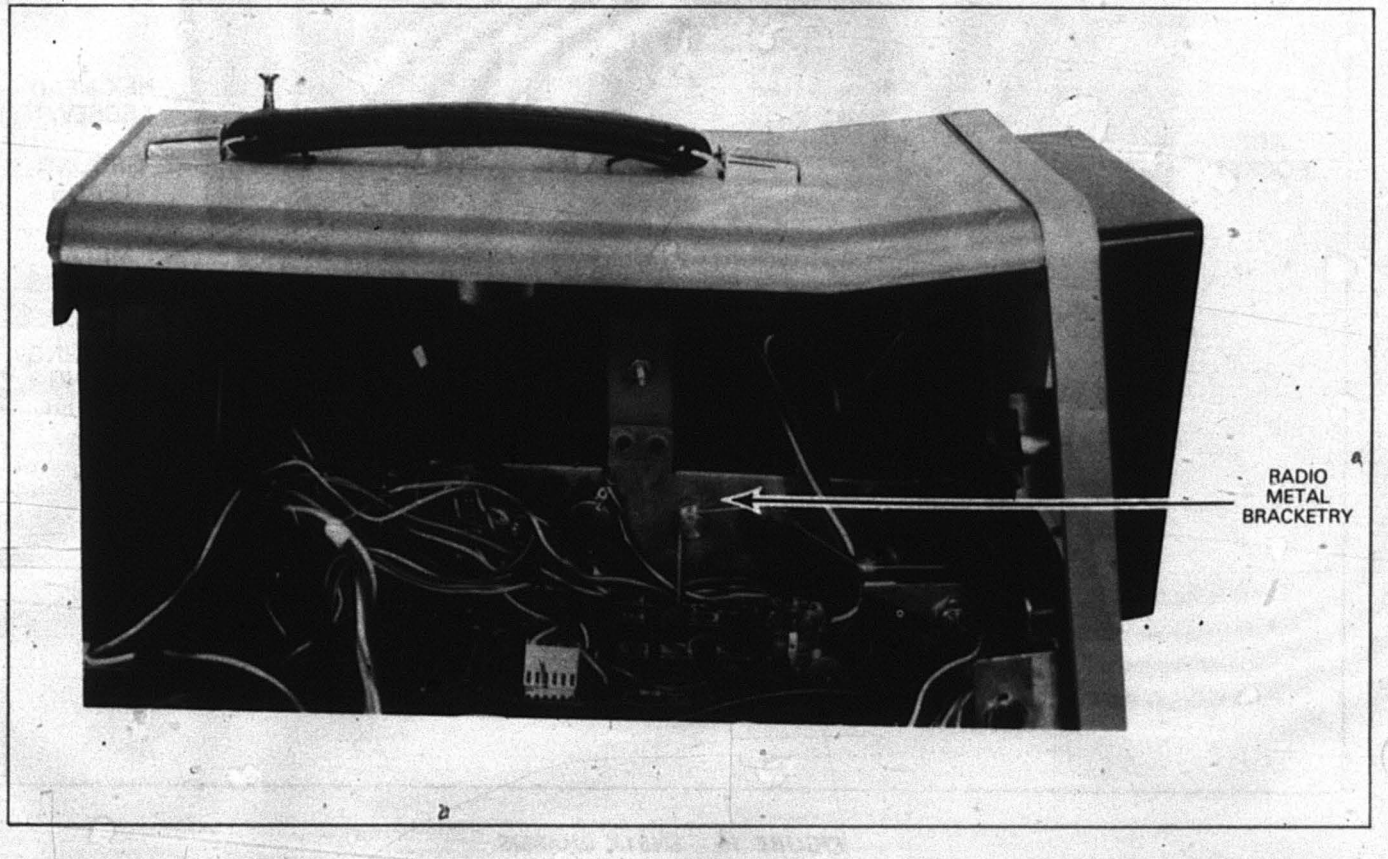


FIGURE 12 – RADIO CHASSIS

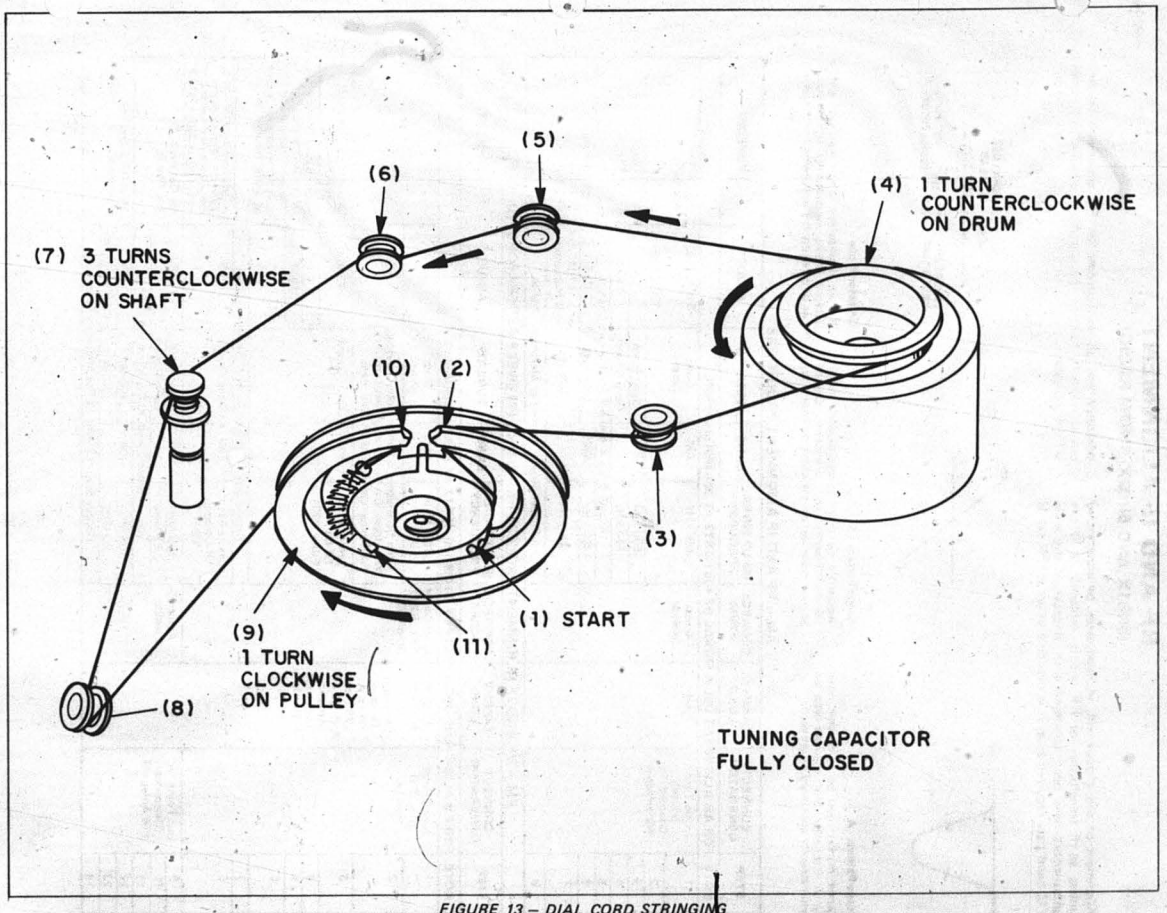
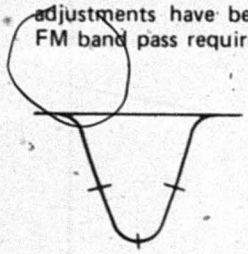


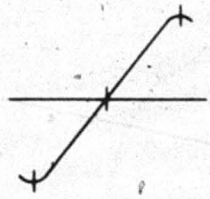
FIGURE 13 – DIAL CORD STRINGING

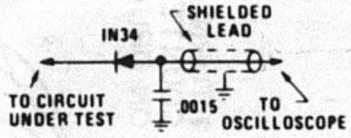
RF AND IF ALIGNMENT

(5NB1X AND 5NB2X AM/FM RADIO)

Alignment of this chassis will, in most cases, be unnecessary unless an IF transformer or RF coil is replaced; or if the adjustments have been tampered with. Because of the wide FM band pass requirements, it is desirable to use an FM signal generator and an oscilloscope for FM alignment. Generator output must be held to the minimum required for scope or VTVM indication.







Scope Pattern - A

Center marker must be at ceramic filter center frequency. Skirt markers must be symmetrically positioned on curve.

Scope Pattern - B

Adjust for maximum amplitude while maintaining linearity and symmetry. Center marker must be on the curve at base line.

Detector Probe -

If your oscilloscope is not equipped with a detector probe, one can easily be constructed. For best results the probe should be shielded.

AM – RF AND IF ALIGNMENT PROCEDURE

STEP	CONNECT GENERATOR	DUMMY LOAD	CONNECT VTVM	INPUT SIGNAL FREQUENCY	BAND	TUNE TO	ADJUST	PURPOSE
NOTE: FOR AM ALIGNMENT USE A SIGNAL OF 400 HERTZ AT 30% MODULATION.								
1	One Turn Loosely Coupled To Wavemagnet	None	Across Speaker	±455 kHz	AM	Gang Closed	T101, T102	Align IF For Maximum.
2							T203, T204	
3				1630 kHz		Gang Open	C1J	Set Oscillator To End Points.
4				510 kHz		Gang Closed	T103	
5				Repeat Steps 4 And 5 For Minimum Change.				
6				1400 kHz	AM	1400 kHz	C1G	Align Antenna Stage For Maximum.
7				600 kHz		600 kHz	L101 If Necessary	
8				Repeat Steps 7 And 8 For Maximum Change.				

FM – RF AND IF ALIGNMENT PROCEDURE – USING FM SWEEP GENERATOR AND SCOPE

STEP	CONNECT GENERATOR	DUMMY LOAD	CONNECT SCOPE	INPUT SIGNAL FREQUENCY	BAND	TUNE TO	ADJUST	PURPOSE
NOTE: FOR FM ALIGNMENT USE A SWEEP OF 60 OR 120 HERTZ AT 250kHz DEVIATION.								
1	Junction Of C15, C10 And L4	47 Ohm In Shunt With Generator Output, Then A 270 Ohm And .05 MF Capacitor In Series From Hot Lead.	Junction Of TP1, R220 And C221	±10.7 MHz	FM	Gang Closed	–	–
2				Tune Generator To Center Total Bandpass Waveform. Do Not Change Generator Frequency For Remainder Of FM IF Alignment.				
3				Center Freq. Of Ceramic Filter Y201	FM	Gang Closed	T206	Detune Secondary Of Ratio Detector.
4							T1	Align IF And Primary Of Ratio Detector For Maximum Amplitude And Symmetry As Shown In Scope Pattern "A".
5							T207	
6							T208, T205	
7				Repeat Steps 4, 5 And 6 For Minimum Change.				
8				Center Freq. Of Ceramic Y201	FM	Gang Closed	T206	Align Secondary Of Ratio Detector For Maximum Amplitude And Symmetry As Shown In Scope Pat. "B".
9	Test Point "A" (Disconnect FM Antenna)		Across Speaker	109 MHz	FM	Gang Open	C1C	Set Oscillator To End Points.
10				87 MHz		Gang Closed	L4	
11				Repeat Steps 9 And 10 For Minimum Change.				
12				106 MHz	FM	106 MHz	C1B	Align RF Stage For Maximum.
13				90 MHz		90 MHz	L2 If Necessary	
14				Repeat Steps 12 And 13 For Minimum Change.				

FM ALIGNMENT WITH AM GENERATOR AND VTVM

Alignment of FM receivers should be performed with an oscilloscope and a FM sweep generator. If this equipment is not available, the following procedure may be used in an emergency.

When the secondary of the Ratio Detector is aligned, use sufficient signal input to get a good positive and negative indication before setting the slug for zero reading. A zero center indicating VTVM is recommended for this adjustment, but is not absolutely necessary. (Reversing the leads of a non-zero center meter, or observing closely when the meter starts to go negative will give the same results). Measure with respect to chassis ground.

While aligning the IF and the Ratio Detector primary, the generator must be held to the minimum required for a meter indication.

FM – RF AND ALIGNMENT PROCEDURE – USING AM GENERATOR AND VTVM

STEP	CONNECT GENERATOR	DUMMY LOAD	CONNECT VTVM	INPUT SIGNAL FREQUENCY	BAND	TUNE TO	ADJUST	PURPOSE
NOTE: FOR FM ALIGNMENT USE AN UNMODULATED SIGNAL. DO NOT ALIGN IN AFC POSITION.								
1	Test Point Junction Of C10, C15 and L4	47 Ohm In Shunt With Generator Output Then A 270 Ohm Resistor And .05 MF Capacitor In Series From Hot Lead.	To Either Side Of C222 In Ratio Det. Ckt.	±10.7 MHz	FM	Gang Closed	—	—
2				Tune Generator To Center Total Bandpass Waveform. Do Not Change Generator Frequency For Remainder Of FM IF Alignment.				
3			Test Point "I" Junction C221 and R220	Center Freq. Of Ceramic Filter Y201	FM	Gang Closed	T206	Detune Secondary Of Ratio Detector.
4			To Either Side Of C222 In Ratio Det. Ckt.				T1	Align IF And Primary Of Ratio Detector For Maximum.
5							T207, T208	
6							T205	
7				Repeat Steps 4, 5 And 6 For Minimum Change.				
8			Test Point "I" Junction Of C221 and R220	Center Freq. Of Ceramic Filter Y201	FM	Gang Closed	T206	Align Secondary Of Ratio Detector For Zero Reading.
9	Test Point "A" (Disconnect FM Antenna)	None	Across Speaker	109 MHz	FM	Gang Open	C1C	Set Oscillator To End Points.
10				87 MHz		Gang Closed	L4	
11				Repeat Steps 9 And 10 For Minimum Change.				
12				106 MHz	FM	106 MHz	C1B	Align RF Stage For Maximum.
13				90 MHz		90 MHz	L2 If Necessary	
14				Repeat Steps 12 And 13 For Minimum Change.				

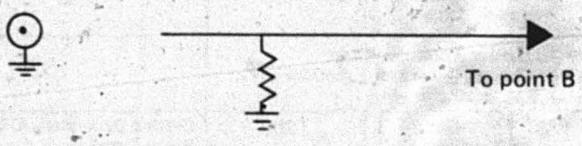
5NBIX I.F. AND TUNER ALIGNMENT PROCEDURE

1. Connect the tuner and I.F.

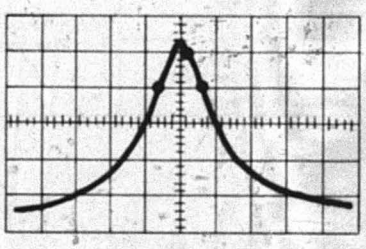
   a) Connect scope probe to TP3.
   b) Connect D.C. power supply to TP1.

2. Aligning T301

   a) Use a 75 OHM sweep generator as an input signal source to point B with the following test cable.



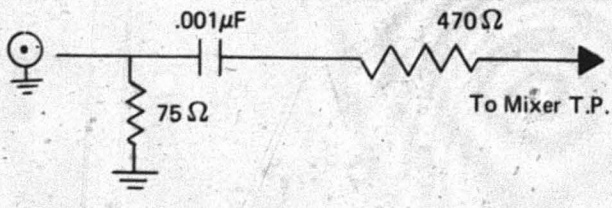
   b) Set AGC BIAS to 4.0V at TP1.
   c) Adjust bottom core for proper marker placement, (see drawing below)
   d) Adjust top core to maximize response without shifting marker placement.
   e) Proper marker placement
      1) 45 MHz marker on 100%.
      2) 45.75 MHz marker on 80%.
      3) 42.75 MHz marker on 80%.



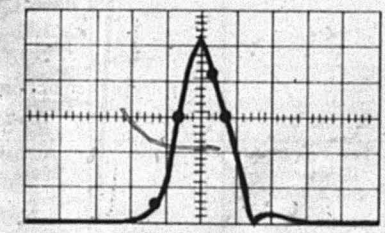
42.75 MHz
45 MHz
45.75 MHz

3. Solder jumper at point B.
4. Overall I.F. alignment

   a) Use a 75 OHM sweep generator as an input signal source to mixer T.P. on tuner using the following test cable:



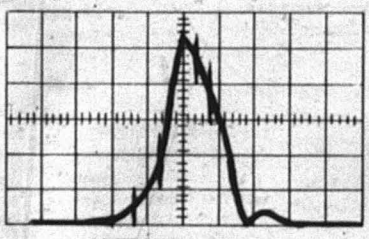
   b) Apply 12 V.D.C. to pin 4 on tuner.
   c) Apply 16 V.D.C. to pin 3 on tuner.
   d) Set AGC bias to 4.0 at TP1.
   e) Align 39.75 MHz and 47.25 MHz traps by increasing oscilloscope gain by 20db.
      1) Adjust top core for on frequency.
      2) Adjust bottom core for trap depth.
   f) Set oscilloscope back to normal and adjust first I.F. coil for proper marker placement.
   g) Adjust tuner mixer coil to maximize response at 44MHz.
   h) If necessary readjust coils to obtain proper marker placement.
      1) 45 MHz marker on 85%.
      2) 45.75 MHz marker on 60%.
      3) 42.75 MHz marker on 60%.
      4) 41.75 MHz marker on 10%.



41.75 MHz
42.75 MHz
45 MHz
45.75 MHz

5. Check max gain response.

   a) Use the same set-up as the overall alignment procedure.
   b) Apply 12 V.D.C. to pin 4 on tuner.
   c) Apply 16 V.D.C. to pin 3 on tuner.
   d) Apply 5.5 V.C.C. to pin 2 on tuner.
   e) Set A.G.C. bias to 0v at T.P.1.
   f) Correct marker placement.
      1) 45 MHz marker between 90%-100%.
      2) 45.75 MHz marker between 80%-100%.
      3) 42.75 MHz marker between 30%-70%.



41.75 MHz
42.75 MHz
45 MHz
45.75 MHz

12YB3X AND 12YB5X INFORMATION

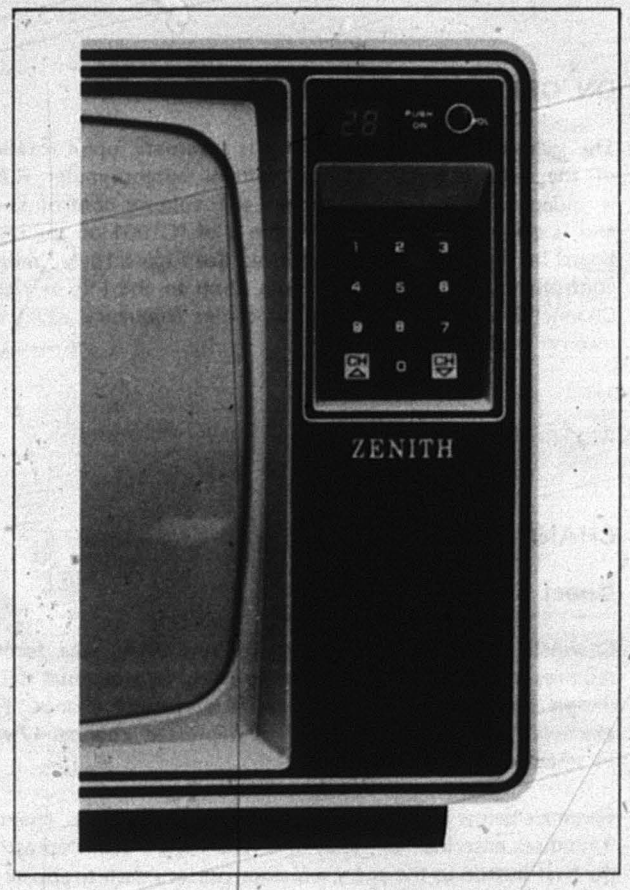
TUNING SYSTEM

The black and white tuning system is a conventional phase lock loop synthesizer which consists of a combination UHF/VHF tuner, PLL synthesizer loop, a microcomputer for control and display, a regulator, and power supply to provide the logic and tuning voltages. This system provides for accurate tuning of on-frequency signals and limited manual tuning of off-frequency signals.

The process board in the field utilizes a combination UHF/VHF tuner with dual gate FET RF amplifiers for both UHF and VHF. This board has four circuit tuning. Requirements for the tuner is that it have an oscillator sample compatible with the prescaler, and the band switching should not place undue demands on the power supply or external switching.

The synthesizer loop uses a prescaler which divides the local oscillator frequency by 256 to give an output between 394kHz and 3.64MHz. This signal is processed by the PLL IC to produce a charge pump output which produces the tuning voltage and completes the phase lock loop.

The tuning system will operate normally at any line voltage and temperature that the basic TV receiver is designed for. Since the tuning system controls the tuning voltage and thus the oscillator frequency, it should not be affected by signal strength or the relationship of channels.



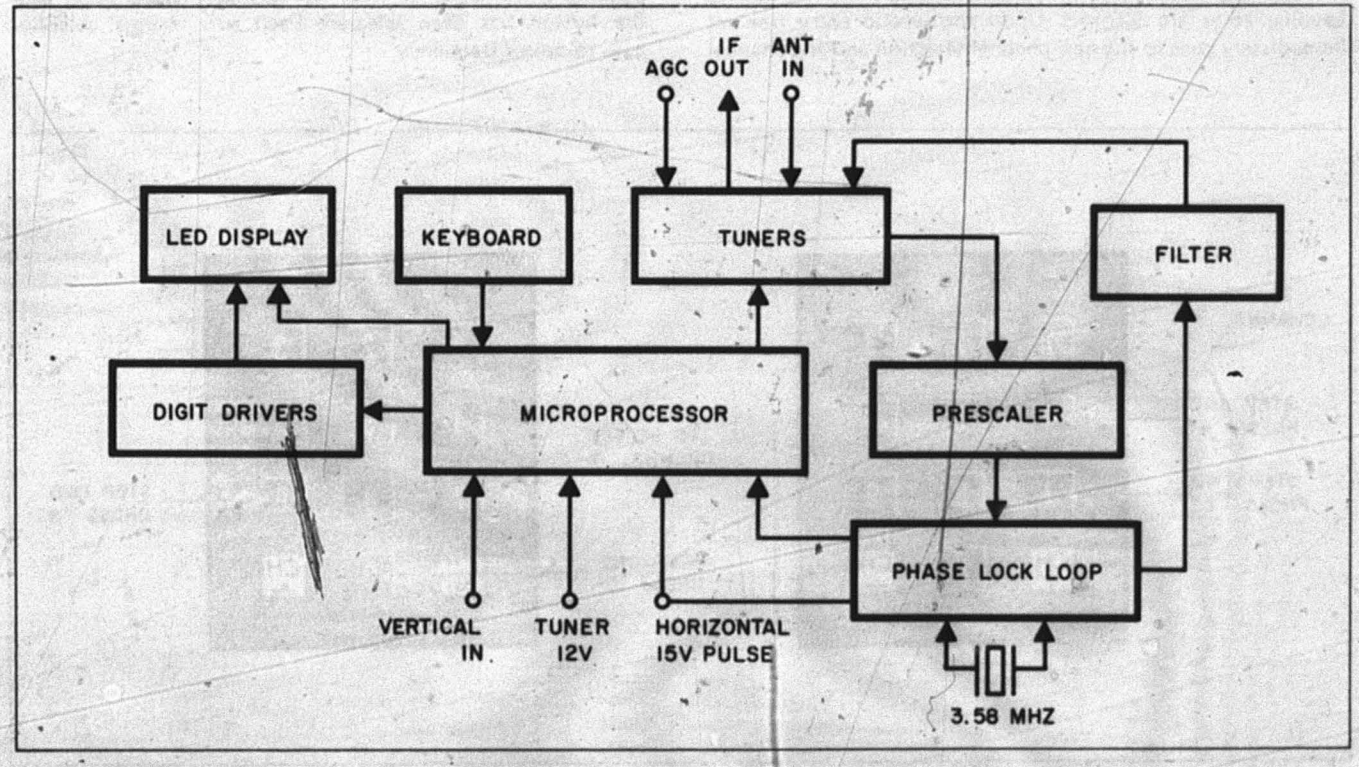


FIGURE 14 – TUNER BLOCK DIAGRAM

FRONT PANEL OPERATION

ON/OFF VOLUME CONTROL

The volume ON control function is automatic upon rotation of the volume knob. Volume control potentiometer R202 is independently located behind the volume control knob and is electrically conneoted to pin 8 of IC1001 on the main board by means of connecting wires. See Figure 15. Volume is controlled by turning the volume knob to the left or right. Channel 2 selection comes on at center frequency when the receiver is activated.

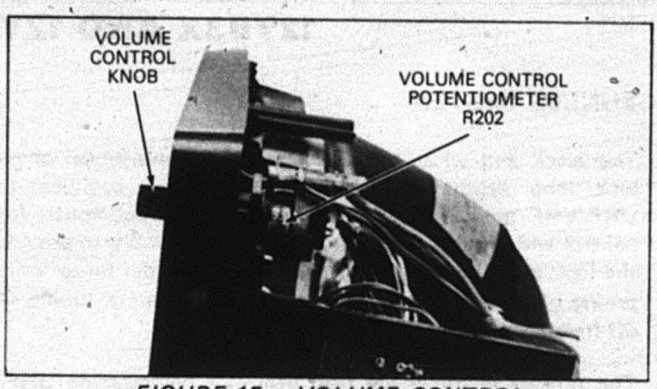


FIGURE 15 – VOLUME CONTROL

CHANNEL SELECTION

Direct Entry

Channels are addressed with a two key entry. The format requires that two buttons corresponding to a channel designation must be depressed to cause a channel change. For example, if the buttons 4 then 7 are depressed, channel 47 will be selected. See Figure 16.

Channels below channel 10 require a leading zero. e.g., channel 9 requires entering "0", and "9". (See Figure 16). Depressing the first button in the entry sequence causes a dash to appear in the LED display as an indication the second entry is required. Leading zeros are blanked. Upon the second entry, the set immediately goes to the new channel selection and the channel display shows the channel number. If no second entry is made within approximately four seconds, the channel display reverts to the preceding channel. Each new channel selection goes to center frequency.

Sequential Entry

When depressed, the channel UP/DOWN buttons cause the set to sequence through all the channels at about two channels per second with a roll over (under) at channels 2 and 83. The button must remain depressed to sequence continually. Pressing up or down after a first number entry causes the pending entry to be deleted. No further changes occur until the button has been released. Each new channel selection goes to center frequency.

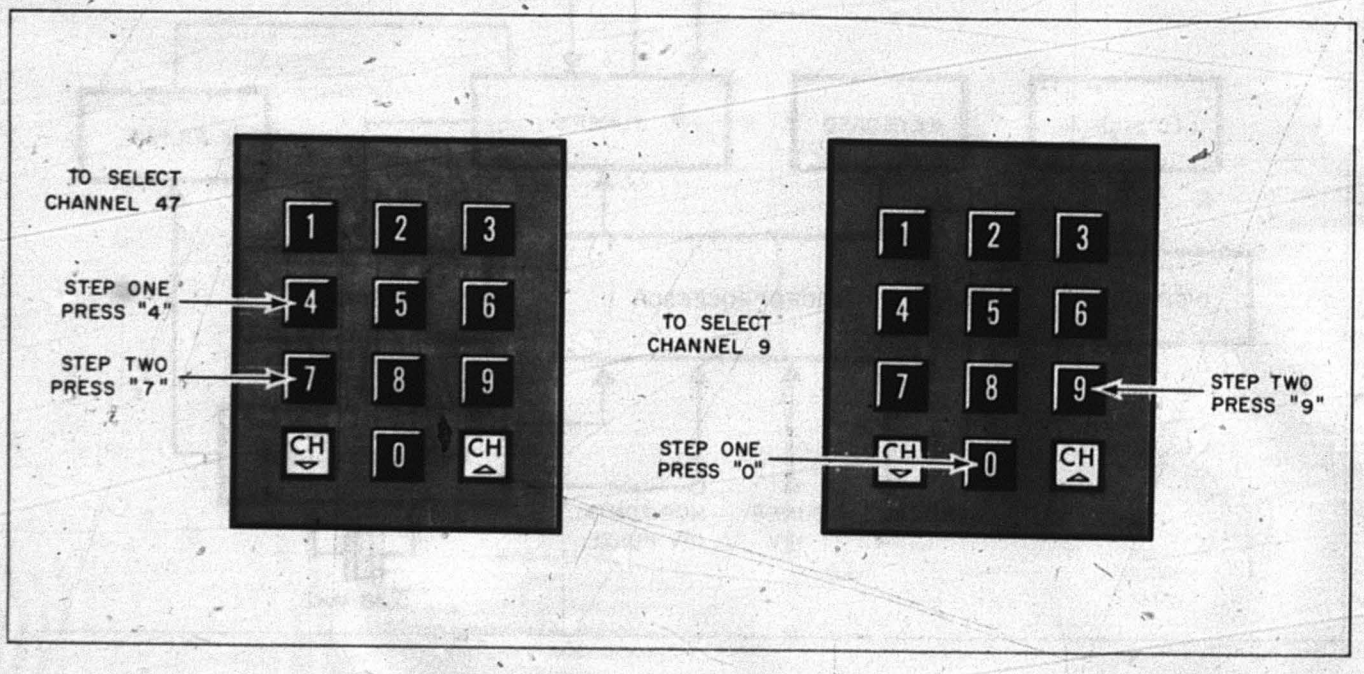


FIGURE 16 – DIRECT ENTRY CHANNEL SELECTION

FINE TUNE

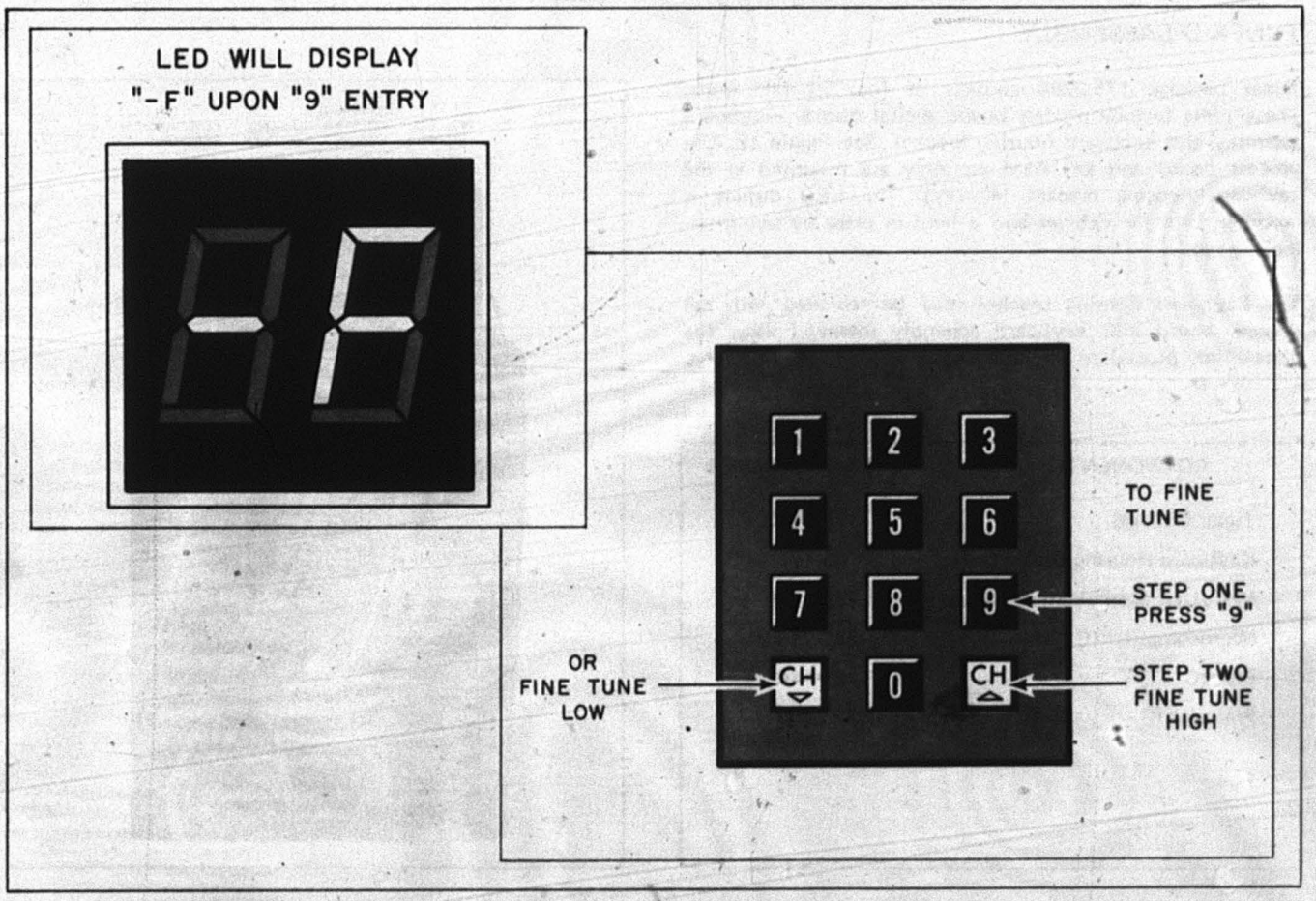
Front panel fine tuning is entered by an initial "9" key entry. This puts the set in a fine tune mode which is indicated by a prompt "-F" in the digital information display. In this mode, the UP/DOWN keys tune the receiver on all channels. The speed and range is dependent upon the channel selected. Action is relatively slow at channel 2 and much faster on UHF. Fine tuning proceeds at a rate between 230kHz/sec. (channel 2) and 580kHz/sec. (channel 13). Fine tuning requires approximately 10 seconds from center frequency to either end of the range. At the end of the fine tune range, which is reached in approximately eight seconds, the "-F" prompt disappears and the channel number reappears indicating that the set is no longer in the fine tune mode. No other action occurs until the button is released. Approximately four seconds of inactivity are allowed before the set reverts to the normal tuning mode. Pressing any button other than up or down while in the fine tune mode will cause the set to return immediately to the channel change mode. The fine tuning is non-memory but is crystal controlled. If a channel is re-selected after having been fine tuned, the set will revert to center frequency. If the set is used with an off-frequency signal such as video games, home computer, and MATV signals, selecting the channel and then fine tuning for a definite time period will return the set to the same frequency which is then held with quartz crystal accuracy.

When a channel is selected, the local oscillator frequency must be within 100kHz of the desired frequency for that channel, e.g., 930.900 to 931.100MHz for channel 83. This may be measured by measuring the output of prescaled local oscillator.

Fine tuning is provided to allow the use of the television receiver to operate on signals which are off-frequency. The width of fine tune steps and fine tune range is proportional to received frequency as follows.

Channel	Fine Tune Increments (kHz)	Fine Tune Range
2	27.54	98.71 - 103.29
6	35.18	126.08 - 131.29
7	60.27	216.00 - 226.00
13	70.08	251.18 - 262.82
14	140.98	505.30 - 528.70
83	253.88	909.93 - 952.07

NOTE: Fine Tuning is also available on UHF but is rarely needed. The set remains in the fine tune mode until the tune up (down) buttons have been released for approximately 4 seconds. At this time the channel display reverts to the channel number.



BT124W/BT124W1 DISASSEMBLY PROCEDURE

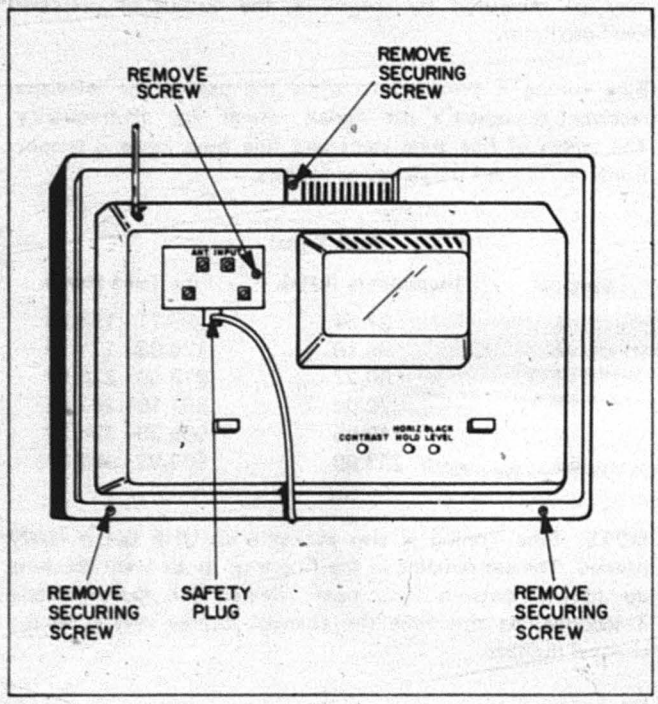


FIGURE 17 – BT124W REAR VIEW

CABINET DISASSEMBLY

The cabinet consists of two major pieces. The front/bottom piece consists of front panel, bezel mounting and cabinet bottom. The back piece encases the inner components entirely and consists of two sides, top and back.

In order to disassemble cabinet (See Figure 17):

1. Tip set forward.
2. Remove three securing screws from cabinet back.
3. Remove screw from antenna terminal assembly.
4. Carefully draw balun towards chassis to free it from cabinet back.
5. Release safety plug from cabinet back.
6. Disconnect antenna lead from clip at base of monopole antenna.
7. Slide main board out of plastic retaining brackets.

NOTE: It may be necessary to remove speaker wires, ground leads, CRT anode and yoke.

TUNER DISASSEMBLY

Tuner package 175-2260 consists of four separate units. These units include process board, digital display, keyboard assembly and keyboard housing bracket. See Figure 18. The process board and keyboard assembly are mounted in the keyboard housing bracket (43-177). The LED display is mounted into the cabinet and is held in place by two interlocking tabs.

The keyboard housing bracket may be removed with the process board and keyboard assembly intact. Follow the disassembly procedure for LED display and keyboard housing.

COMPONENT	PART NUMBER
Tuner Package	175-2260
Keyboard Housing Bracket	43-177
VHF/UHF Combination Tuner	175-2038
Microcomputer IC	221-216-01
PLL IC	221-144
Prescaler IC	221-255

TUNER MAJOR COMPONENTS

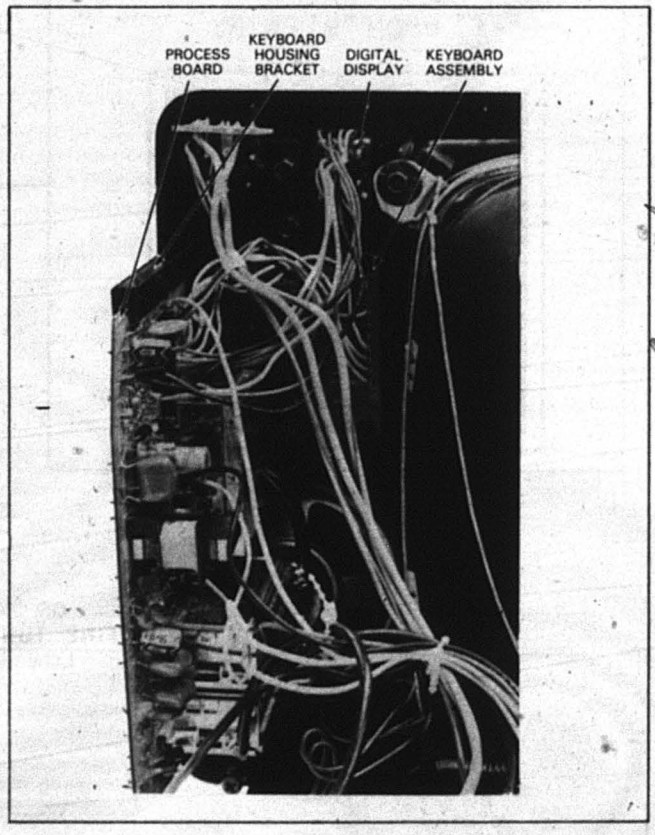


FIGURE 18 – TUNER PACKAGE

Procedure #1: LED Display

The LED assembly is held in place by two "harpoon" hooks. See Figure 19. The hooks may be encased by a glue. The glue should be carefully broken loose.

1. Release right side of LED from hook.

2. Slide left side of LED assembly from under left hook.

NOTE: A snap may be heard when releasing LED assembly from harpoon hook. This is normal. However, should a plastic hook break, a speaker retaining clip may be used to support the LED assembly.

Reassemble the LED display assembly by sliding the right side of the display under the right harpoon hook. Firmly force the left side of the LED display over the left hook.

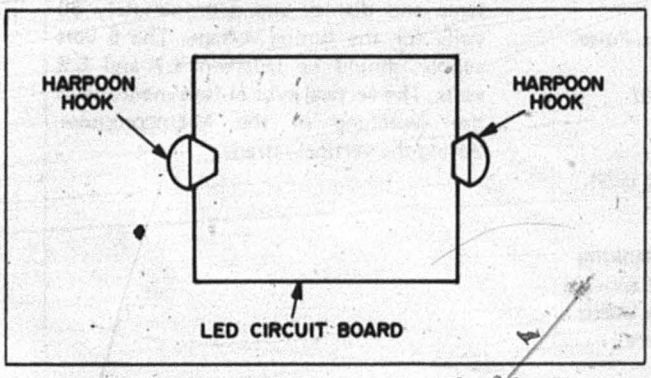


FIGURE 19 – MOUNTED LED ASSEMBLY

Procedure #2: Keyboard Assembly

The keyboard assembly consists of a pc board (204-032), keyboard rubber pad (127-224), ground plate with button guide (82-298), and 12 push button knobs.

1. Remove four Phillips screws from the corners of the keyboard circuit board. See Figure 20.

2. Should the electrical contacts need to be exposed, remove keyboard rubber pad and ground plate.

3. Push-button knobs lift out.

Procedure #3. Process Board

The circuitry on the process board includes tuner 175-2038, Microcomputer IC (221-216-01), PLL IC (221-144), Prescaler IC)221-255), filtering components and various chassis inputs and outputs. The PLL and Prescaler are located in the shielded area with the RF circuitry. The process board slides out of retaining brackets which are a part of the keyboard housing. The board is held securely by two harpoon hooks. See Figure 21.

1. Release process board from two harpoon hooks.

2. Slide process board out of retaining brackets.

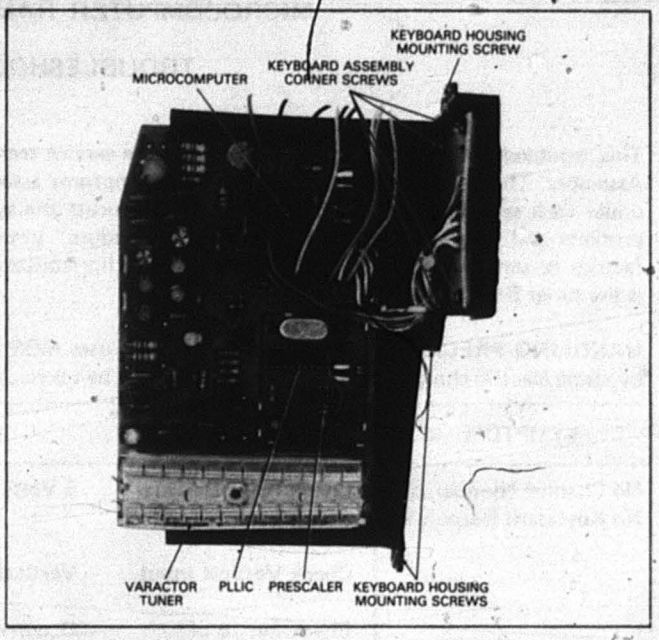


FIGURE 20 – TUNER PACKAGE IN KEYBOARD HOUSING BRACKET

Procedure #4: Keyboard Housing Disassembly

1. Disassemble LED display assembly.

2. Disassemble keyboard assembly.

3. Disassemble process board.

4. Remove three mounting screws from the keyboard housing. See Figure 20.

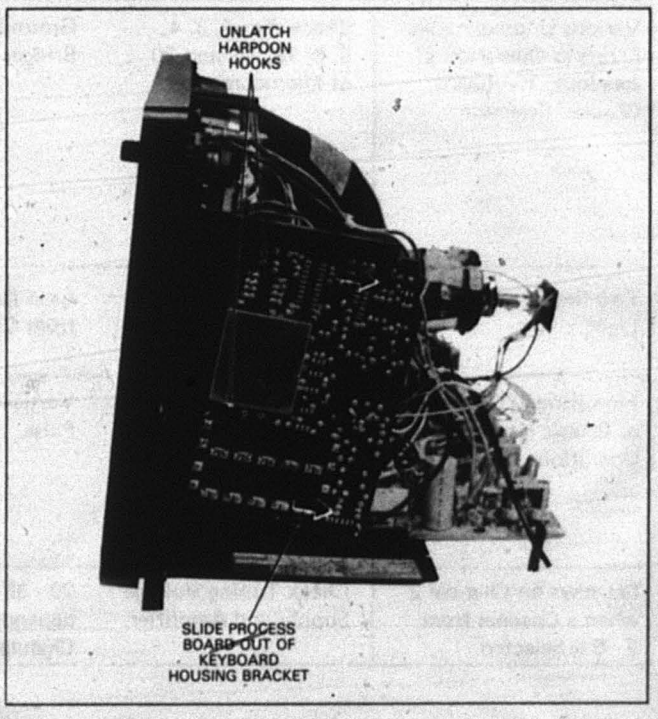


FIGURE 21 – PROCESS BOARD DISASSEMBLY

MICROCOMPUTER RANDOM ACCESS TUNING

TROUBLESHOOTING CHART

This troubleshooting chart is provided to aid the service technician in quickly repairing the Microcomputer Process Board Assembly. The chart contains twelve common symptoms associated with this tuning system and a list of things to check for under each symptom. To obtain the best results, locate the symptom in the troubleshooting chart which best describes the problem and follow the steps listed under "Procedure" until you have located the defect. The tuning system requires no factory or service adjustments. It requires 12 volts, horizontal and vertical pulses, and AGC from the TV chassis. The 12 volts is the tuner B+.

HANDLING PRECAUTIONS: The tuning system uses MOS and other types of integrated circuits which may be damaged by static electric charge. Standard precautions must be taken during handling of the ICs or damage may occur.

SYMPTOM	PROCEDURE	RESULT	COMMENTS
No Channel Number or No Keyboard Response.	Check Point Designation #5.	5 Volts.	The horizontal pulse is applied to a small transformer which makes 5 volts for the logic and display and approximately 30 volts for the tuning voltage. The 5 volt supply should be between 4.7 and 5.5 volts. The vertical sync pulse synchronizes the switching of the Microcomputer during the vertical retrace.
	Check Vertical Input.	Vertical Sync Pulse.	
	Check Pin 16 of Microcomputer.	Occurrence of Oscillations.	
	Check Reset Pin 17 of Microcomputer.	Power Going High.	
	Check Pin 8 of Microcomputer.	A Display Blanking Pulse should appear in Sync with Vertical Blanking Pulse.	
	Ground Pin 17 of Microcomputer.	Square Waves should appear on Pin 19 of Microcomputer. When Released, the set should go to Channel 2.	
Various Unpredictable Errors in Operation of Readout, Keyboard, Channel Selection.	Check Pins 1, 3, 4, 5, 6, 18, 19, and 20 of Microcomputer.	Grounds, Solder Bridges or Shorts.	Pins 1, 3, 4, 5, 6, 18, 19, and 20 on the Microcomputer are one eight line port which connect to the display, keyboard and PLL IC at various times in the cycle of the computer. Any grounds, solder bridges or shorts on these lines can cause various unpredictable errors in the operation of the readout, keyboard and channel selection.
Two Segments Always Light.	Check Pins 1, 3, 4, 5, 6, 18, 19 and 20 of Microcomputer.	Lead Dress Shorts from Circuit.	(See Above Comments)
Flickering in Display or Erratic Keyboard Operation.	Check Pin 7 of Microcomputer.	Vertical Retrace Pulse.	The display is scanned. One digit is on at a time. Switching between digits occurs at the vertical rate controlled by the vertical retrace pulse. An erratic vertical rate will cause flickering in the display and perhaps erratic keyboard operation.
Set stays on Channel 2 when a Channel from 2 - 6 is Selected.	Check Tuning Voltage Supply and Amplifier.	20 - 35 Volts depending on Channel Selected.	

TROUBLESHOOTING CHART (Continued)

SYMPTOM	PROCEDURE	RESULT	COMMENTS
Possible PLL Failure.	Check for Proper Operation of Channel Display & Keyboard.	Assume PLL is Receiving the Proper Data.	When proper data is presented to the PLL, pin 9 goes high briefly to enable the PLL IC. Grounding Pin 9 therefore prevents the PLL from receiving data from the Microcomputer. The Microcomputer sends data in 4 bit words during the vertical retrace period. A sequence of six words conveys channel frequency, fine tuning and one null work in sequence. Seeing this information in a useful way is almost impossible in a service shop. Therefore, you should infer that if the channel display and keyboard operate properly and pulses are seen on pin 9 of the Microcomputer, the PLL is receiving the proper data.
	Check Pin 9 of Microcomputer.	Pulses Should Be Seen.	
	Check Pin 8 of IC303.	Pin 8 should read 195.3125007Hz when Fine Tune is is in the Middle of its Range. (A counter is recommended).	The PLL is connected to a quartz crystal oscillating at 3.5810547MHz (Desired). Please **Do not** try to use either a color subcarrier crystal or a color tuning crystal for this part. This frequency is divided by 18335 when the fine tune is in the middle of its range. This output appears on pin 8 of IC303. This represents a frequency of 195.3125007Hz if the PLL is properly receiving data. This frequency will change slightly as the fine tuning is exercised (checking with a counter is recommended).
Prescaler Failure.	Open the Loop: Remove Q310 and R322 and Supply the Tuning Voltage from an Adjustable Power Supply of 0-30 Volts.	Oscillator Output: @50Mv Magnitude with a Frequency Between 101 and 931MHz.	NOTE: Failure of the voltage supply will probably effect Prescaler first. If Prescaler goes out, it is recommended you check the voltage supply.
	Select Proper Band (2-6, 7-13, 14-83) by Key Entry. Adjust the Power Supply.	See if the Tuners Tune Properly. @ 50Mv Magnitude with a Frequency Between 101 and 931MHz.	
	NOTE: If Suitable Meter is Not Available:		
	Check Pin 5 of Prescaler to Judge Adequacy of Oscillator Sample Voltage.	Pin 5 of Prescaler should have a Frequency of @ 394KHz for Channel Two, @ 3.636MHz for Channel 83.	The prescaler will oscillate on its own at a frequency of 4MHz or above if it has inadequate input. This frequency will be unstable and will not change in response to changes of the tuning voltage in a systematic way.

TROUBLESHOOTING CHART (Continued)

SYMPTOM	PROCEDURE	RESULT	COMMENTS
Correct Prescaled Output.	Check Output of PLL IC.	Check for Exact Tuning Point.	
	Pin 5 of IC303.	Check for Variance Around Proper Tuning Point.	It will probably be difficult to see the exact tuning point. It should be sufficient to see that the output changes as the output varies around the proper tuning point. This can be seen on pin 9 of IC303.
Set Tunes, but Horizontal Bars are Present.	Check for Oscillations on Tuning Voltage.	Tuning Voltage should look very clean with only a slight noise on VHF (less than 5Mv).	Make sure scope leads do not pick up horizontal interference.
Oscillations or an AC Signal Superimposed on the Tuning Voltage.	Check for Defective Transistors in the Tuning Voltage Amplifier.	Possible Transistor Defect.	If the problem has been corrected, proper tuning can be verified by measuring the prescaled output on pin 9 of IC302. This is the local oscillator frequency divided by 256. It is specified to be within 100KHz at Channel 83 and the error will decrease to the 10KHz region at channel 2. It is important to remember that this tuning accuracy is completely independent of any received signal or lack of signal.
	Check for Wrong Time Constants in the Filter around the Tuning Voltage Amplifier.	Oscillations – Locate Defective Part or Wrong Value Associated with Q309 and Q310.	
Beats or Sound in Picture.	Resolve by IF Alignment or Other Correction to the Source of Problem.		Appearance of beats or sound in the picture cannot be corrected in the tuning system. These must be resolved by IF alignment or other correction to the source of problem.

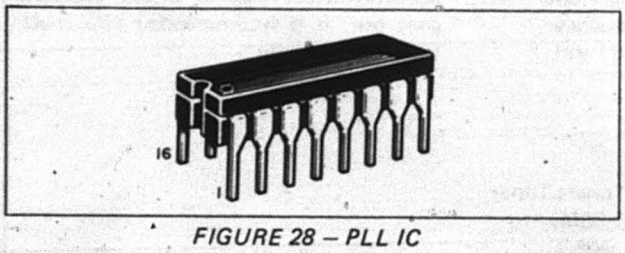


FIGURE 28 – PLL IC

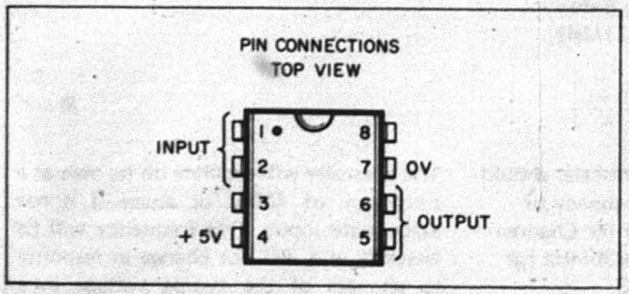


FIGURE 29 – PRESCALER PIN CONFIGURATION

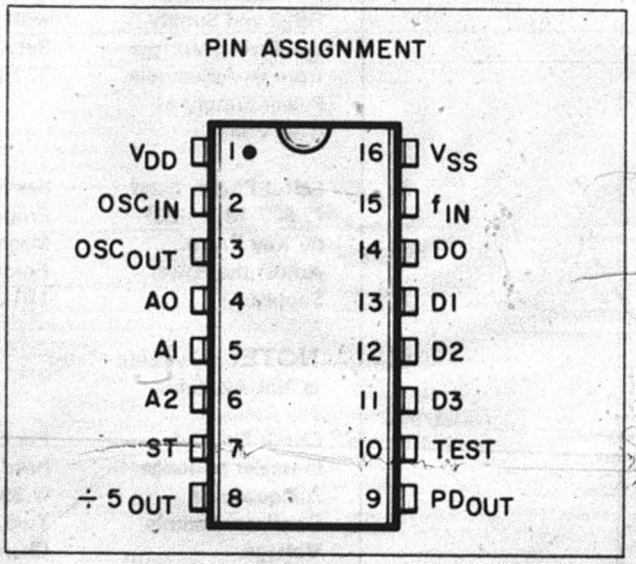


FIGURE 30 – PLL PIN CONFIGURATION

IC101 PIN VOLTAGE

TABLE I

No Signal DC Voltages For IC101

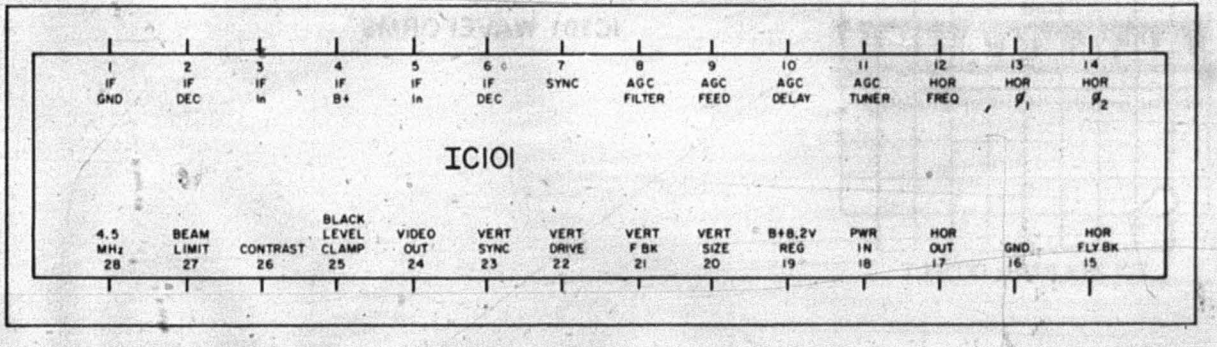
PIN	VOLTAGE
1	Gd.
2	5.3
3	5.3
4	6.2
5	5.3
6	5.3
7	0.6
8	0
9	0.6
10	3.5
11	2.0
12	4.8
13	4.6
14	6.6
15	0.6
16	Gd.
17	1.1
18	12.3
19	8.2
20	2.6
21	4.2
22	0.6
23	0.15
24	2.4
25	6.5
26	4.5
27	1.2
28	6.4

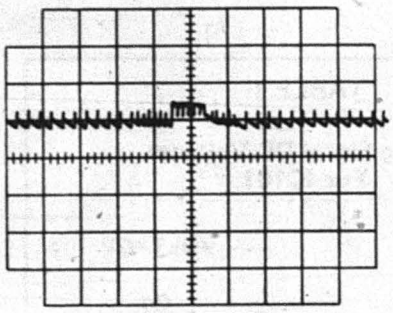
TABLE II

Strong Signal DC Voltages For IC101

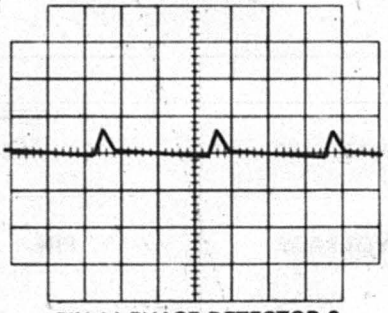
PIN	VOLTAGE
1	Gd.
2	5.3
3	5.5
4	6.2
5	5.5
6	5.3
7	4.1
8	3.2
9	2.5
10	3.2
11	3.4
12	4.8
13	5.3
14	6.5
15	0.6
16	Gd.
17	1.1
18	11.9
19	8.2
20	2.6
21	4.2
22	0.3
23	5.4
24	2.7
25	2.9
26	4.5
27	0.8
28	5.4

PIN VOLTAGES FOR IC101

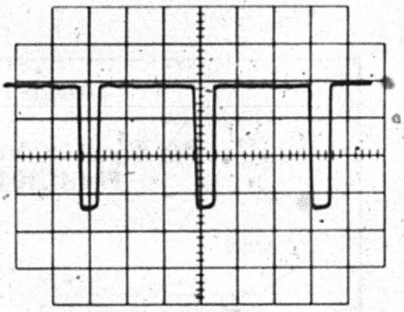




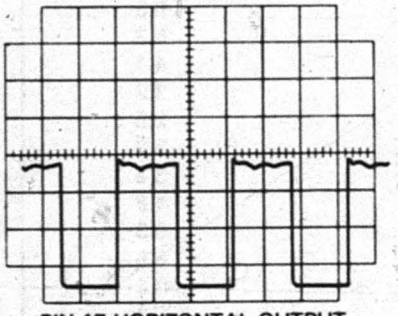
PIN 7 SYNC SEPARATOR



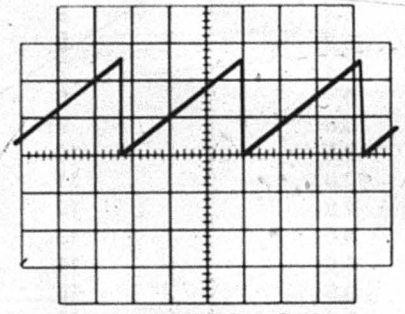
PIN 14 PHASE DETECTOR 2



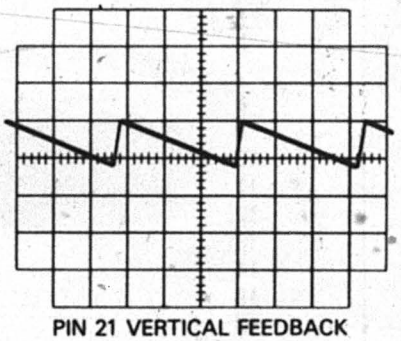
PIN 15 HORIZONTAL FLYBACK



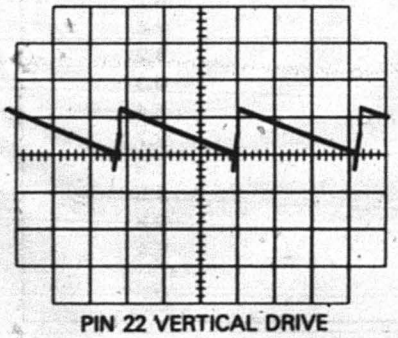
PIN 17 HORIZONTAL OUTPUT



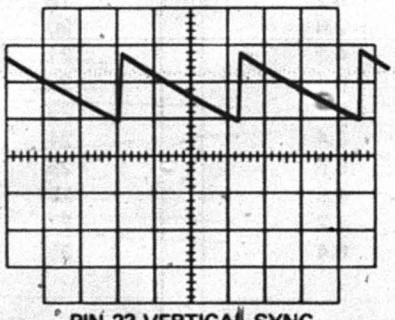
PIN 20 VERTICAL SIZE



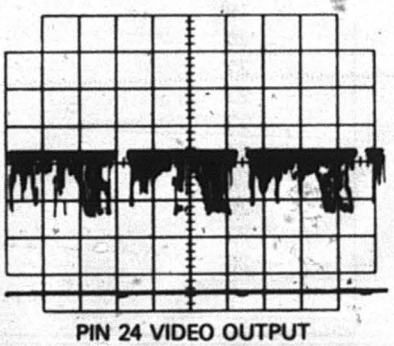
PIN 21 VERTICAL FEEDBACK



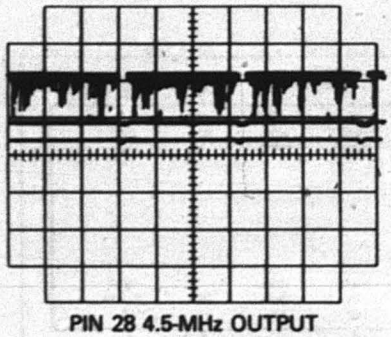
PIN 22 VERTICAL DRIVE



PIN 23 VERTICAL SYNC



PIN 24 VIDEO OUTPUT

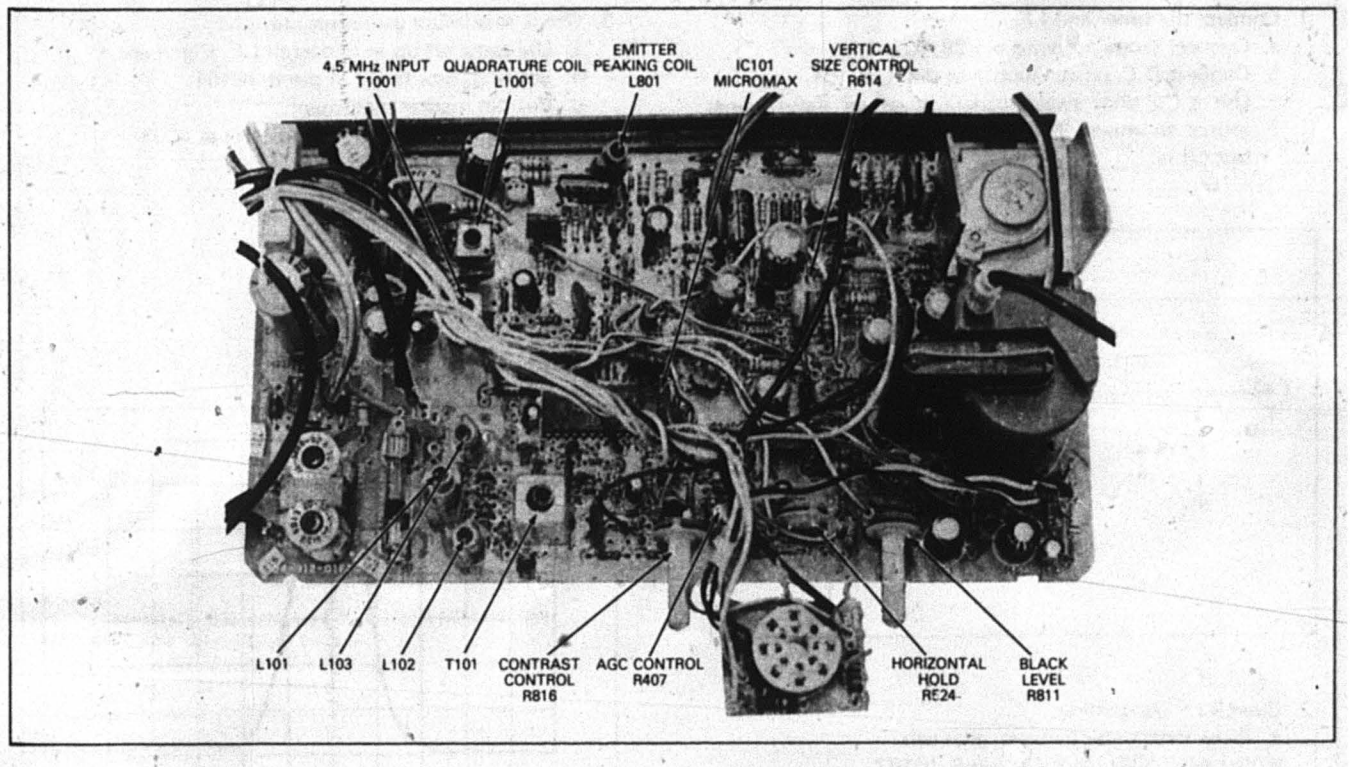


PIN 28 4.5-MHz OUTPUT

IC101 WAVEFORMS

12YB1X (3X, 4X, 5X) SOUND ALIGNMENT

1. Using a strong station, tune quadrature coil L1001 for best sound.
2. Reduce the signal until sound becomes noisy.
3. Tune input coil T1001 for maximum sound.
4. Readjust quadrature coil L1001 for best sound.



12YB1X (3X, 4X, 5X) ADJUSTMENTS

Before engaging in extensive troubleshooting, begin with adjustments. Much time and effort has been spent on troubleshooting procedures when a mere adjustment is all that is needed to rectify a problem. In case adjustments do not bring satisfactory results, troubleshooting procedures are then required.

Check all wires and connector assemblies for proper electrical connections. Poor electrical connections at jacks and terminals are a common source of trouble. The junctions at these points are mechanical and are made of metal which may oxidize over a period of time. Therefore, periodic cleaning of all plugs, jacks, lugs, connectors and terminals is advisable. The easiest way to clean connections is to spray them with a non-corrosive cleaner. Or, you may clean them with a pencil eraser or scrape them with fine sandpaper. Pull all the plugs out of their sockets and push them back in several times. Loosen and tighten screw terminals to tighten the contacts.

Unplug the power cord and examine it for signs of broken insulation, burn marks, and loose prongs at the plug. There may be a break in the lead-in line. The lead-in line can be checked with a volt-ohm meter. If the meter reads zero ohms, the lead-in is good. High ohms indicates a break. In this event, replace the lead-in. Test the wall outlet being used for power, and replace the fuse if there are signs it has blown. Repeated fuse blowing may indicate trouble in the building wiring or a short circuit in the monitor.

Rotate yoke to bring the raster parallel with the top and bottom edges of the screen. If the video is not properly framed on the screen, rotate the centering magnet adjustment lever as required.

Position the picture tube socket module onto the base of the CRT neck, matching plug pins with socket openings. Press firmly in to make proper connection. Connect all aquadag grounds.

Adjust Horizontal Phase Control R524 to bring the video information into the center of the raster.

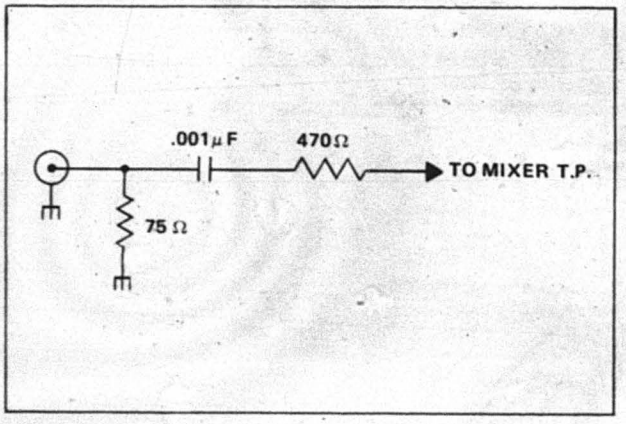
Adjust Black Level Control R811 until the video has maximum clarity of detail. Set the control for a normal display of the gray range.

Adjust Contrast Control R816 to just extinguish the raster.

Adjust Vertical Size Control R614 as required to provide normal picture height.

12YB1X/4X IF AND TUNER ALIGNMENT

1. Connect the tuner and I.F.
   a. Connect scope probe to pin 28, IC101.
   b. Connect D.C. power supply to pin 8, IC101.
   c. Use a 75 ohm sweep generator as an input signal source to mixer T.P. on tuner using the following test cable:



2. Overall I.F. Alignment.
   a. Place VHF tuner between channels.
   b. Set AGC bias to 4.0V at pin 8, IC101.
   c. Set oscilloscope to 0.5V per division.
   d. Align 39.75MHz and 47.25MHz traps by increasing sweep generator gain until trap valleys are visible.
      1. Place bottom core of 39.75 trap as far down as possible.
      2. Align top core for proper center frequency.
      3. Adjust bottom core of 47.25 trap for maximum trap depth.
      4. Adjust top core for proper center frequency.
   e. Adjust the top core of T101 for a peak at 44MHz.
   f. adjust the bottom core of T101 to maximize the peak without changing its frequency.
   g. Adjust the tuner mixer coil for maximum peak at 44MHz.
   h. Adjust L101 for the waveshape shown.
   i. If necessary, touch up the top and bottom cores of T101 for proper marker placement.
      1. Adjust sweep gain for 45MHz at 100%.
      2. Peak at 120%.
      3. 45.75 at 55%.
      4. 42.75 at 45-70%.
      5. 41.25 at 10%.

(See Figure A)

3. Check maximum gain response.
   a. Use same set up as in overall I.F. alignment.
   b. Set AGC bias to 0V at pin 8, IC101.
   c. Correct marker placement.
      1. Adjust sweep gain for 45MHz at 100%.
      2. Peak at 100% – 120%.
      3. 45.75 at 55% – 70%.
      4. 42.75 at 30% – 70%.
      5. 41.25 at 5% – 10%.

(See Figure B)

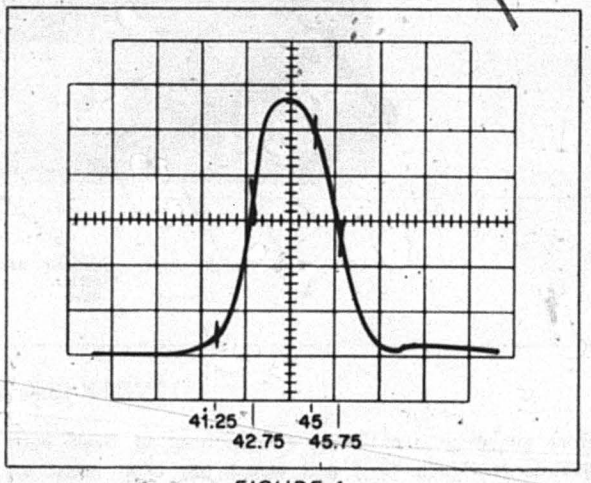


FIGURE A

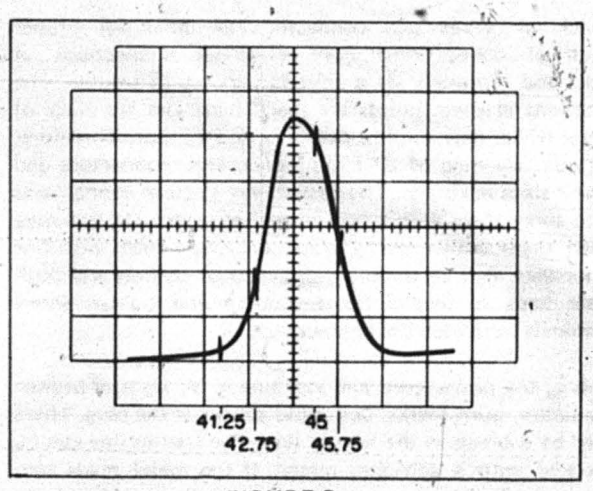
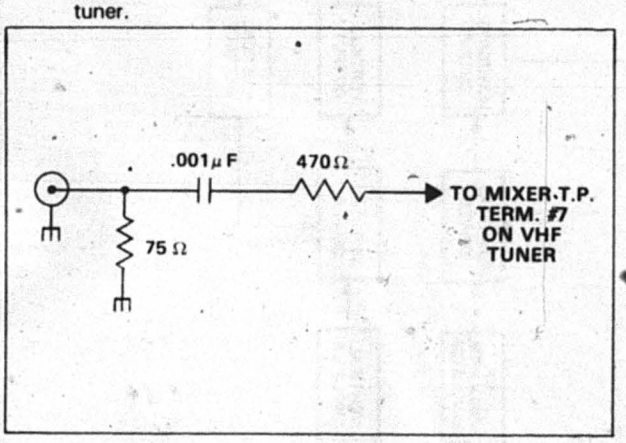


FIGURE B

12YB3X/5X IF AND TUNER ALIGNMENT

1. Connect the tuner and I.F.
   a. Connect scope probe to pin 28, IC101.
   b. Connect D.C. power supply to pin 8, IC101.
   c. Use a 75 ohm sweep generator as an input signal source to mixer T.P. on tuner using the following test cable:
   d. Apply a positive Bias of 6.0 Volts to term. 2 of the VHF tuner.



2. Overall I.F. Alignment.
   a. Enter CH83 on keyboard.
   b. Set AGC bias to 4.0V at pin 8, IC101.
   c. Set oscilloscope to 0.5V per division.
   d. Align 39.75MHz and 47.25MHz traps by increasing sweep generator gain until trap valleys are visible.
      1. Place bottom core of 39.75 trap as far down as possible.
      2. Align top core for proper center frequency.
      3. Adjust bottom core of 47.25 trap for maximum trap depth.
      4. Adjust top core for proper center frequency.
   e. Adjust the top core of T101 for a peak at 44MHz.
   f. adjust the bottom core of T101 to maximize the peak without changing its frequency.
   g. Adjust the tuner mixer coil for maximum peak at 44MHz.
   h. Adjust L101 for the waveshape shown.
   i. If necessary, touch up the top and bottom cores of T101 for proper marker placement.
      1. Adjust sweep gain for 45MHz at 100%.
      2. Peak at 120%.
      3. 45.75 at 55%.
      4. 42.75 at 45-70%.
      5. 41.25 at 10%.

(See Figure A)

3. Check maximum gain response.
   a. Use same set up as in overall I.F. alignment.
   b. Set AGC bias to 0V at pin 8, IC101.
   c. Correct marker placement.
      1. Adjust sweep gain for 45MHz at 100%.
      2. Peak at 100% – 120%.
      3. 45.75 at 55% – 70%.
      4. 42.75 at 30% – 70%.
      5. 41.25 at 5% – 10%.

(See Figure B)

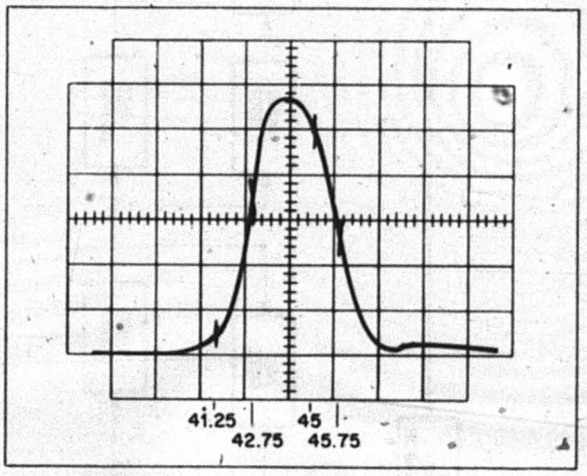


FIGURE A

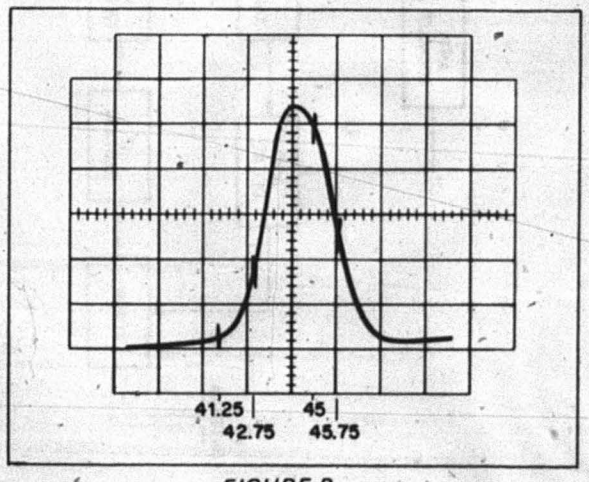


FIGURE B

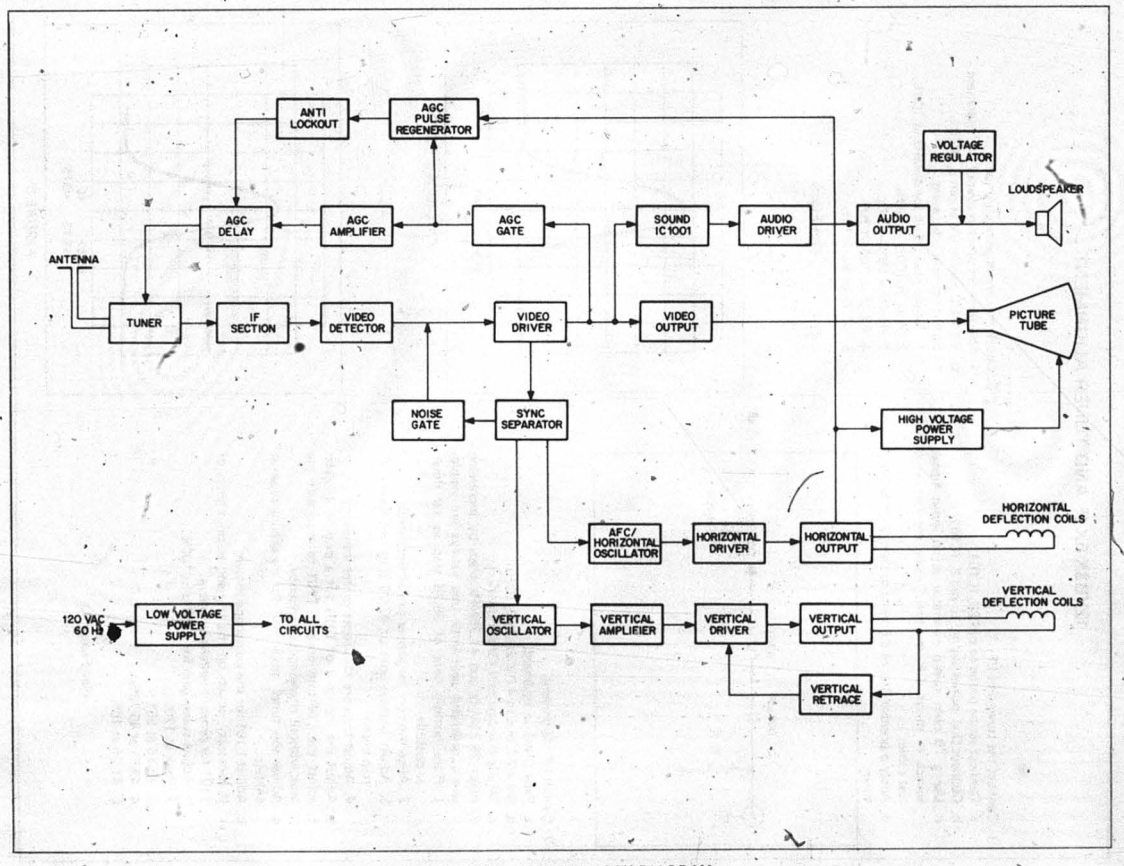
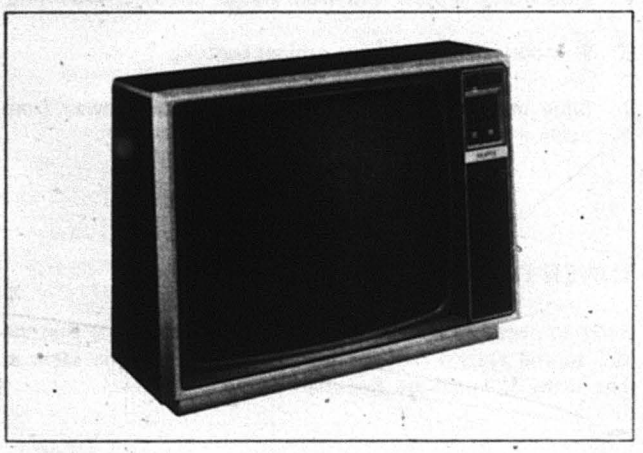


FIGURE 25 – 19MB2X BLOCK DIAGRAM

19MB2X THEORY OF OPERATION



19MB2X TUNING SYSTEM

The 19" electrical tuning system operates on a voltage derived from the power supply located on the 19MB2X chassis. This voltage is coupled through three capacitors in series to a bridge rectifier on the tuning system's main process board (See Figure 26). The in-going B+ voltage to the tuning system process board flows through four diodes (CR701, CR702, CR703, CR704) which are located on the 19MB2X main board. These four diodes prevent reverse-polarity of voltage going into the capacitors on the process board. Should it be desired to test the tuning system without the main board, it is imperative to add the diodes to the in-going externally supplied power supply, being sure to connect the diodes to ground.

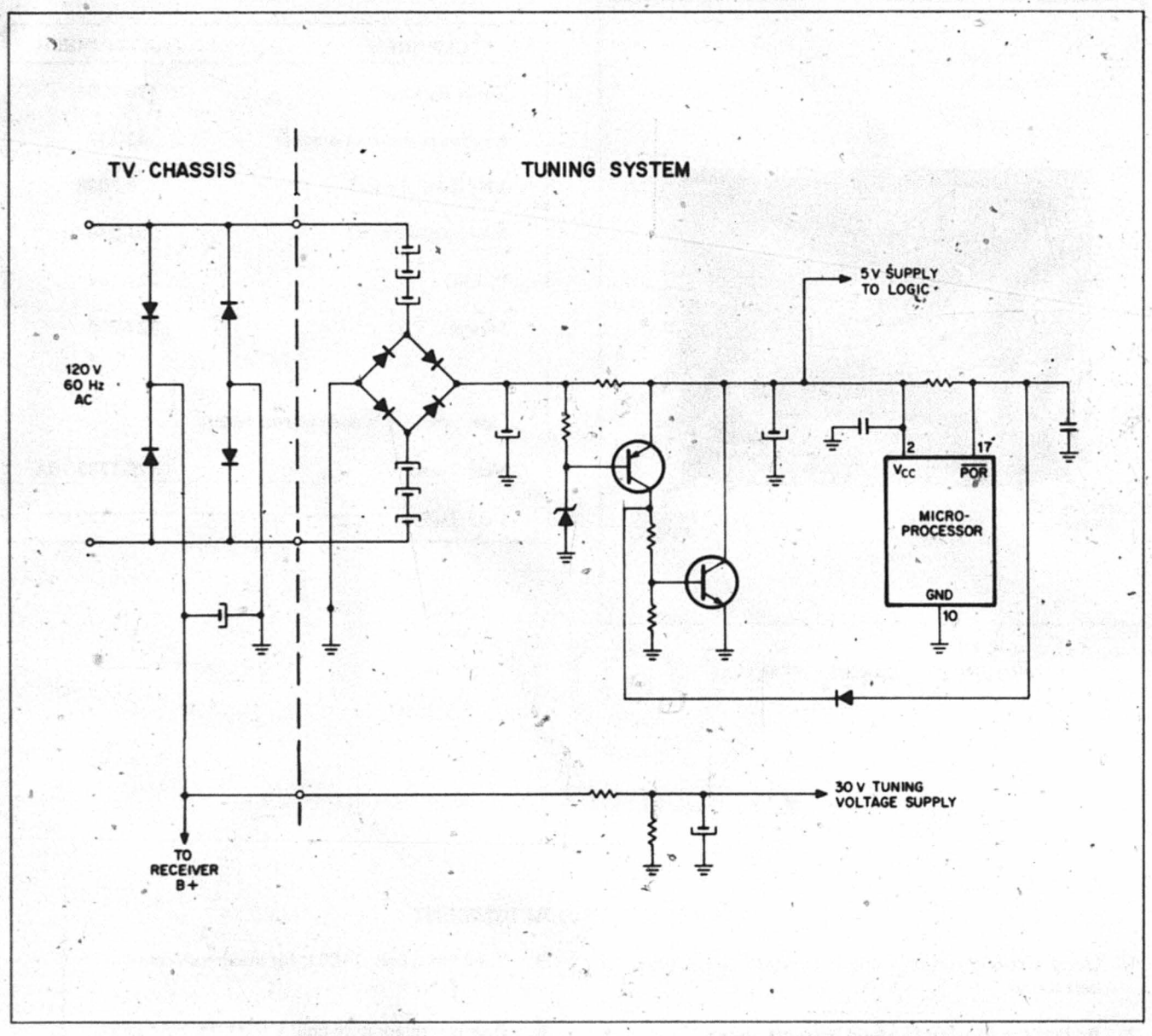


FIGURE 26 – PARTIAL SCHEMATIC OF POWER SUPPLY

19MB2X CABINET DISASSEMBLY

1. Carefully tip set forward onto a soft surface. See Figure 27.
2. Remove two screws from back of set, one at either end of the grip.
3. Follow bottom support legs to the cabinet front and remove two securing screws which hold back panel to cabinet front.
4. Remove screw from antenna terminal assembly. Free antenna terminal assembly from cabinet back maneuvering it in towards chassis.
5. Remove cabinet back being careful to avoid hitting the chassis retaining brackets.

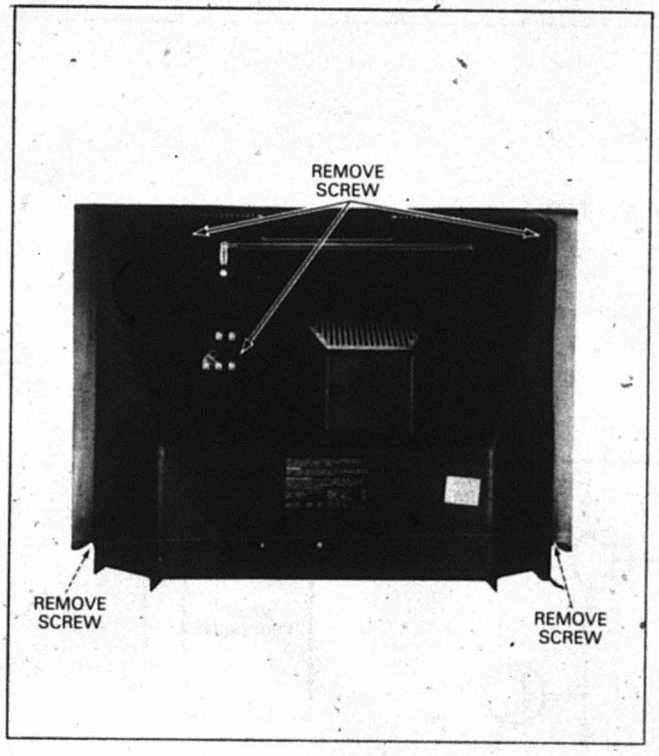


FIGURE 27 – CABINET REMOVAL

19MB2X CHASSIS REMOVAL FOR SERVICE

1. Disconnect ground clip from corner of bezel mounting.
2. Remove safety plug from cabinet bottom.
3. Slide retaining brackets (with chassis intact) away from cabinet bottom.

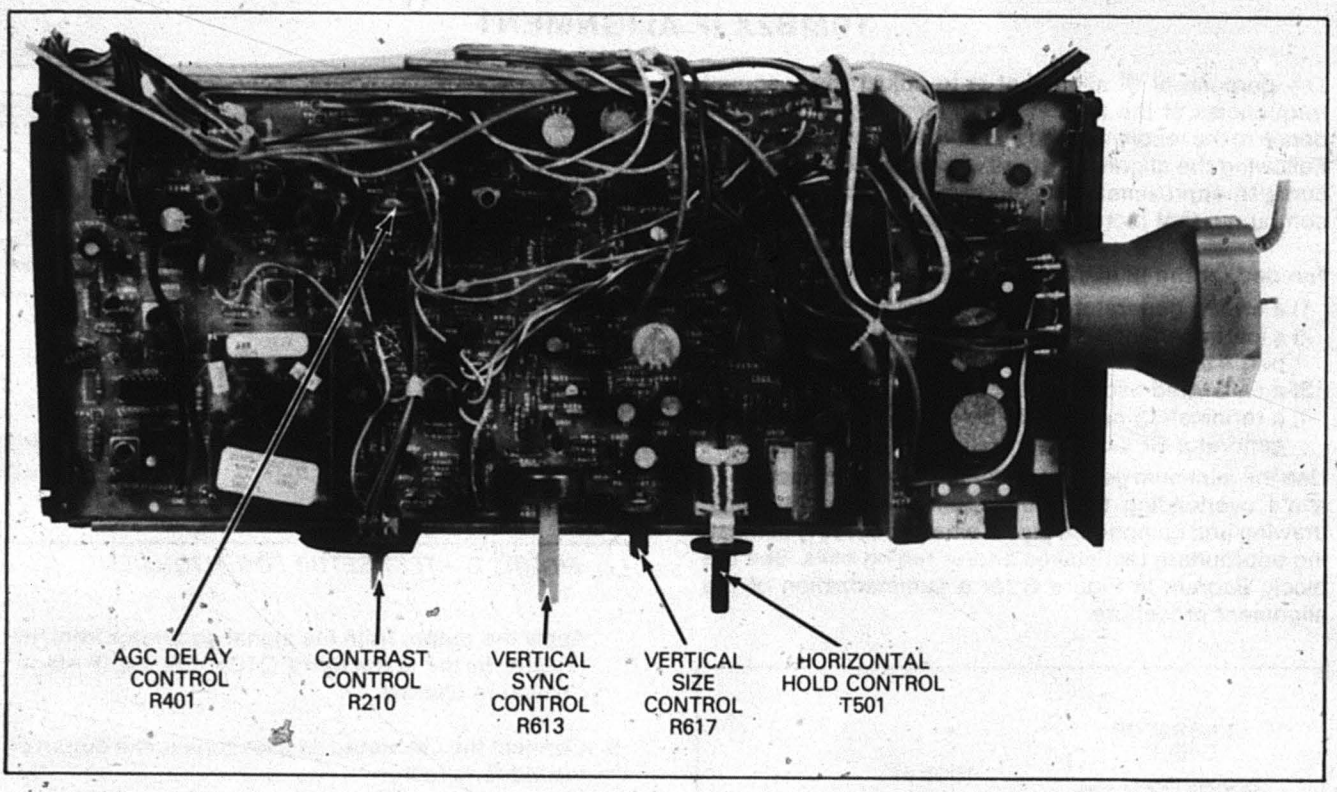
TUNER DISASSEMBLY

Refer to pages 22 and 23 for tuner disassembly. Note that the 19" tuning system package part number is not the same as that of the 12" package. See chart below.

COMPONENT	PART NUMBER
Tuner Package	175-2261
Keyboard Housing Bracket	43-177
VHF/UHF Tuner*	175-2038
Microcomputer IC	221-216-01
PLL IC	221-144
Prescaler IC	221-255
*Mechanically tuned systems tuners:	
VHF Tuner	175-1732-10A
UHF Tuner	175-5120-07

19MB2X SOUND ALIGNMENT

1. Using a strong station, tune quadrature coil, L1001, for best sound.
2. Reduce the signal until sound becomes noisy.
3. Tune input coil, T1001, for maximum sound.
4. Readjust quadrature coil, L1001, for best sound.



19MB2X ADJUSTMENTS

Before engaging in extensive troubleshooting, begin with adjustments. Much time and effort has been spent on troubleshooting procedures when a mere adjustment is all that is needed to rectify a problem. In case adjustments do not bring satisfactory results, troubleshooting procedures are then required.

Check all wires and connector assemblies for proper electrical connections. Poor electrical connections at jacks and terminals are a common source of trouble. The junctions at these points are mechanical and are made of metal which may oxidize over a period of time. Therefore, periodic cleaning of all plugs, jacks, lugs, connectors and terminals is advisable. The easiest way to clean connections is to spray them with a non-corrosive cleaner. Or, you may clean them with a pencil eraser or scrape them with fine sandpaper. Pull all the plugs out of their sockets and push them back in several times. Loosen and tighten screw terminals to tighten the contacts.

Unplug the power cord and examine it for signs of broken insulation, burn marks, and loose prongs at the plug. There may be a break in the lead-in line. The lead-in line can be checked with a volt-ohm meter. If the meter reads zero ohms, the lead-in is good. High ohms indicates a break. In this event, replace the lead-in. Test the wall outlet being used for power, and replace the fuse if there are signs it has blown. Repeated fuse blowing may indicate trouble in the building wiring or a short circuit in the chassis.

Rotate yoke to bring the raster parallel with the top and bottom edges of the screen. If the video is not properly framed on the screen, rotate the centering magnet adjustment lever as required.

Position the picture tube socket module onto the base of the CRT neck, matching plug pins with socket openings. Press firmly in to make proper connection. Connect all grounds.

Adjust Vertical Size Control R617 (back of set) as required to provide normal picture height.

Adjust Vertical Sync Control R613 (back of set) if necessary to stabilize the display.

Adjust Horizontal Hold Control T501 (back of set) to bring the horizontal sweep frequency within range, so that the screen is scanned normally and the picture does not up into diagonal strips.

Adjust Contrast Control R210 (back of set) to just extinguish the raster.

Adjust Black Level Control R202 (front of set) until the video has maximum clarity of deatil. Set the control for a normal display of the gray range.

Adjust AGC Delay Control R401 (on main board) by tuning the receiver to a weak channel and turning the AGC control until snow just disappears from the screen or until it is at a minimum.

19MB2X IF ALIGNMENT

The purpose of IF alignment is to adjust the resonant frequencies of the load and trap circuits in correspondence to the recommended specifications as listed below. Following the alignment steps will allow the IF response curve to approximate the recommended bandwith and contour so that picture reproduction is optimized.

Needed for the IF alignment of the 19MB2X are:

1) a sweep generator with appropriate markers
2) a low impedance external bias supply such as Zenith part #950-179
3) a calibrated oscilloscope
4) a terminating network to be attached to the sweep generator RF output

Use the minimum generator signal which is still usable to avoid overloading the circuit. Refer to the schematic drawing and component layout when necessary in locating appropriate test stakes and/or tuning coils. See the block diagram in Figure B for a summarization of the alignment procedure.

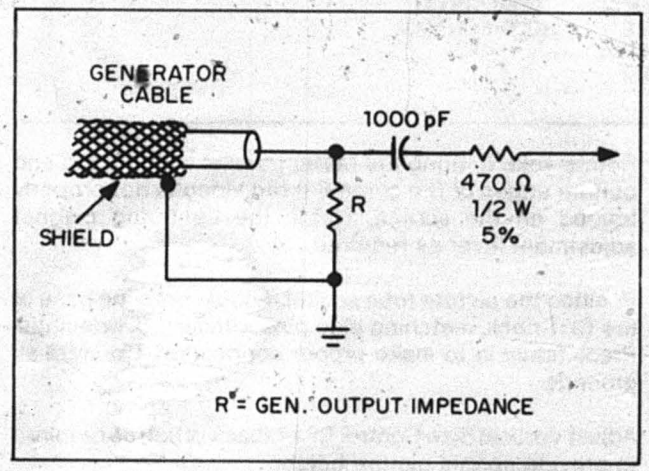


FIGURE A – TERMINATING NETWORK

SETUP PROCEDURE

1. Attach the terminating network (Figure 1) to the sweep generator RF output.

2. Connect the calibrated oscilloscope to test stake 7 through a 10K isolation resistor. Ground the shielded lead to chassis.

3. Clamp the AGC bus to test stake 5 with a dc bias source. If using Zenith part #950-179, an externally supplied or battery operated +24 dc voltage must be supplied.

4. Connect a 1K ½W resistor to the main board between the +12 Volt bus and AGC input to the VHF tuner.

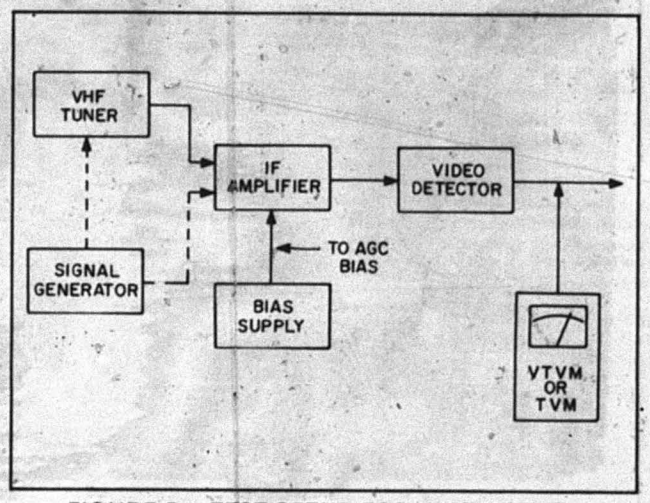


FIGURE B – TEST SETUP FOR ALIGNMENT

Apply the output from the signal generator from the resistor to the collector of Q101, the 1st IF stage. Ground to chassis.

5. Connect the calibrated oscilloscope to the output of the video detector.

6. Set the AGC bias to approximately 5.7 VDC measured at test stake 5 to prevent preceding stage from having any effects on the following IF alignment coils.

7. Connect clip lead from anode of CR403 to ground.

8. Set the television channel selector to channel 13. Keep the volume control set at a low level.

ALIGNMENT PROCEDURE

1. Adjust the oscilloscope gain so that 2.5 volts produce full deflection of the waveform on the oscilloscope. 2.5 volts 0 to max is reference output for subsequent steps.

2. Adjust the slugs in T101: Move the top slug counterclockwise to the top of the can. Move the bottom slug clockwise until the slug is to the bottom of the can. Adjust the top slug for a maximum of 45 MHz, and the bottom slug for proper position of the 42.75 MHz and 45.75 MHz markers as seen in Figure C.

3. After T101 is aligned, remove the sweep generator lead from the collector of Q101.

4. Connect the sweep generator lead to the mixer test point on the VHF tuner as shown in Figure D. For

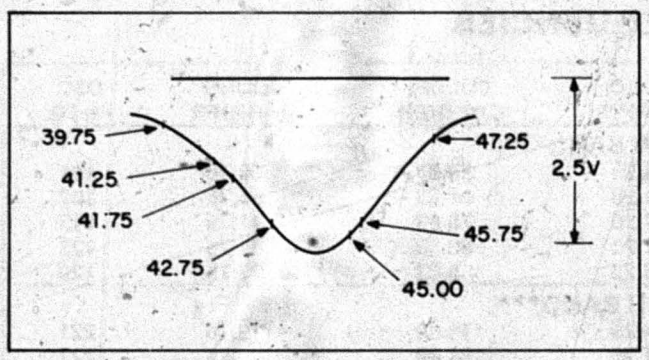


FIGURE C – T101 RESPONSE CURVE

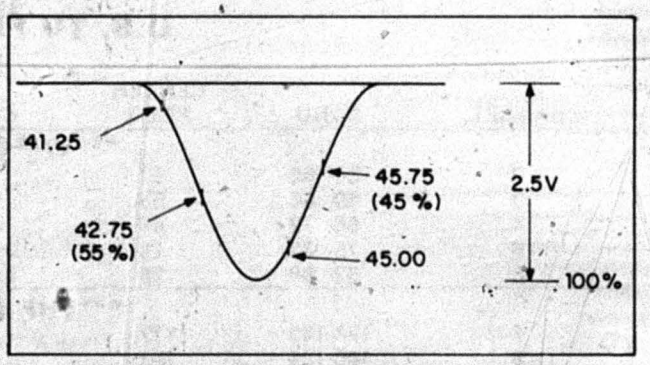


FIGURE E – OVERALL RESPONSE CURVE

mechanical tuner, connect to mixer test point on main process board: sodder terminating network to resist pad which is on the tuner and to ground. Adjust the output from the sweep generator to 2.5 volts peak-to-zero at test stake 7. The response should be as shown in Figure E.

5. Set the AGC bias supply for +3.1 volts, measured at test stake 3. This will produce an expanded view of the response as shown in Figure F.

6. Adjust L107 by moving the slug at the top of the can for a correct frequency of 47.25 MHz. Adjust the bottom slug to a maximum depth trap as shown in Figure F.

7. Adjust L106 by moving the slug at the top of the can for a correct frequency of 39.75 MHz. Adjust the bottom slug to obtain a maximum trap depth as shown in Figure F.

8. Set the AGC bias supply to +5.7 volts. Maintaining the same sweep generator conditions of 2.5 volts peak-to-zero at test stake 7, adjust L104 for maximum amplitude of 45.75 MHz at the 50% point, and set.

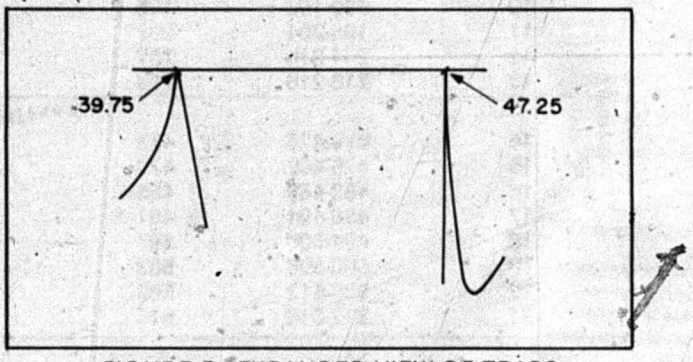


FIGURE F – EXPANDED VIEW OF TRAPS

9. Reduce the AGC bias supply to +3.1 volts. Decrease the sweep generator output to produce the response shown in Figure G. Adjust L108 by moving the slug at the top of the can for a 45 MHz mark at peak for maximum gain response, and a 45.75 MHz mark down, no more than 30% from peak.

10. Readjust AGC bias to +5.7 volts. Increase sweep generator output to give an output of 2.5 volts peak-to-zero at test stake 7.

11. Decrease the oscilloscope gain by 20dB. Repeat alignment of L104 and T101. Adjust the collector of Q101 if necessary for a maximum amplitude of 44 MHz to produce proper response, bandwidth and symmetry of curve as required. After completion, remove the 4.7 resistor at the tuner.

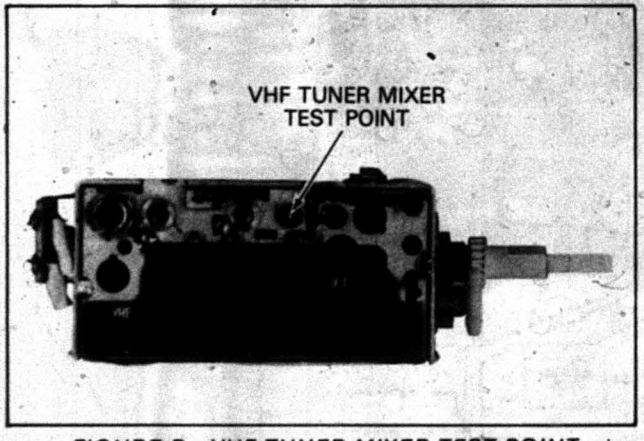


FIGURE D – VHF TUNER MIXER TEST POINT

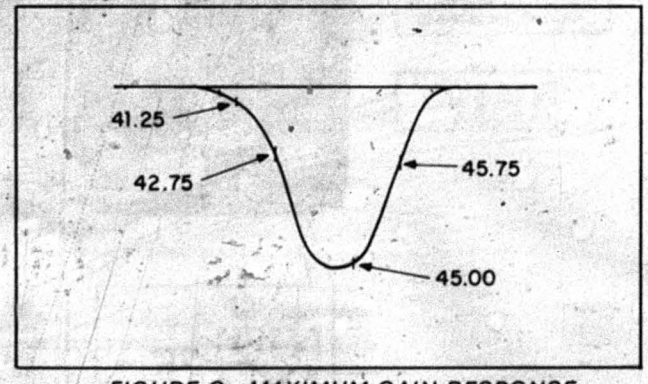


FIGURE G – MAXIMUM GAIN RESPONSE

Y193W AND Y194W MODIFICATION FOR CABLE USE

Some Y193W and Y194W models are exhibiting garbled sound when used on some cable stations. To improve picture and sound quality, the following changes should be made.

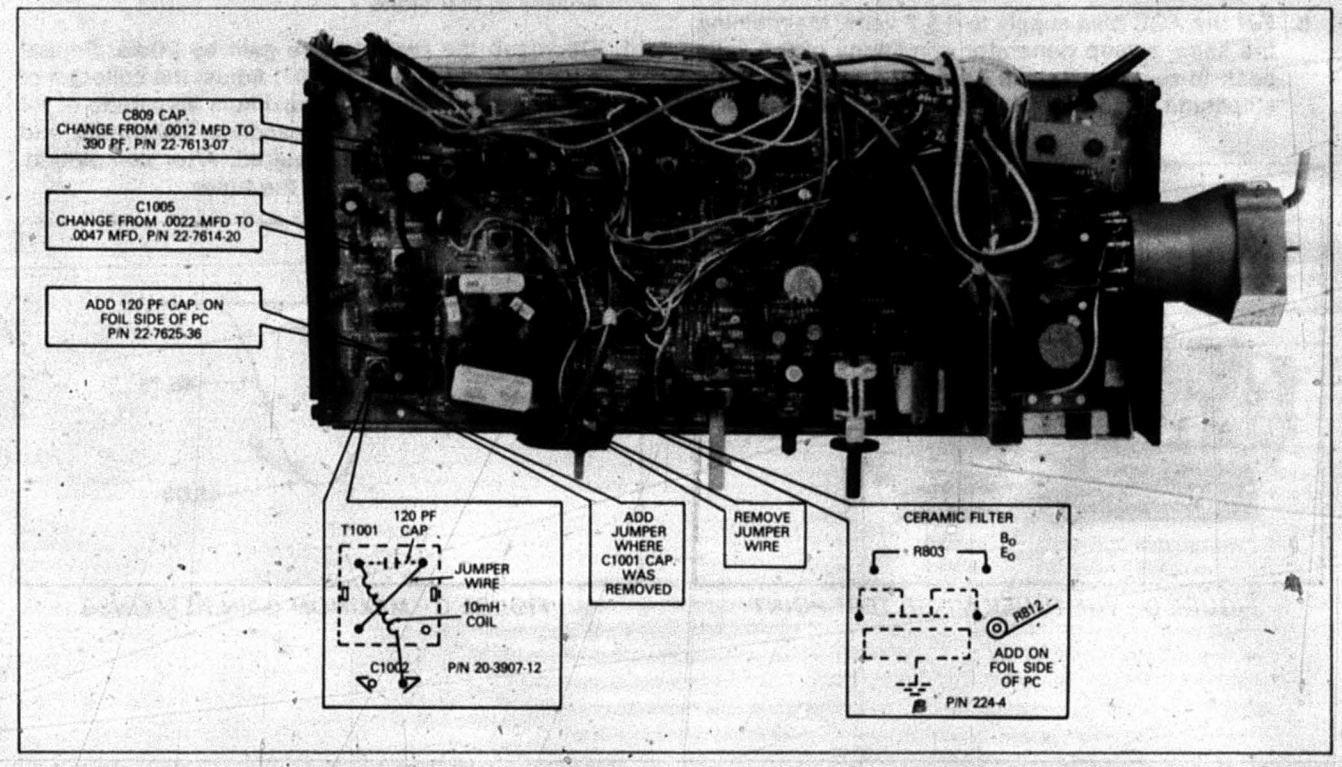
In the video circuit section, replace C809 capacitor (.0012mfd) with a 390pf capacitor (Zenith Part No. 22-7613-07). See illustration for placement of component on circuit board.

In the audio circuit section, remove T1001, C1001, C1002 and jumper wire just below R803. Replace C1005 capacitor (.0022mfd) to a .0047mfd capacitor (Zenith Part No. 22-7614-20). See illustration below.

Add a ceramic filter (Part No. 224-4) where the jumper wire was removed. Make sure middle leg of ceramic filter goes to ground. Also add a 120pf capacitor (Part No. 22-7625-36) on foil side of circuit board in location indicated in illustration below.

Add a 10mH coil (Part No. 20-3907-12A) in location where transformer T1001 was removed. Also, add a jumper wire to terminals shown on component layout illustration.

Where C1001 capacitor was removed, add a jumper wire across terminals as indicated in illustration below.



U.S. TV FREQUENCIES

CHANNEL	BAND	CENTER FREQ.	VIDEO CARRIER	COLOR CARRIER	SOUND CARRIER	OSC. FREQ.
			VHF LOW BAND			
2	54- 60	57	55.25	58.83	59.75	101
3	60- 66	63	61.25	64.83	65.75	107
4	66- 72	69	67.25	70.83	71.75	113
5	76- 82	79	77.25	80.83	81.75	123
6	82- 88	85	83.25	86.83	87.75	129
			VHF HIGH BAND			
7	174-180	177	175.25	178.83	179.75	221
8	180-186	183	181.25	184.83	185.75	227
9	186-192	189	187.25	190.83	191.75	233
10	192-198	195	193.25	196.83	197.75	239
11	198-204	201	199.25	202.83	203.75	245
12	204-210	207	205.25	208.83	209.75	251
13	210-216	213	211.25	214.83	215.75	257
			UHF BAND			
14	470-476	473	471.25	474.83	475.75	517
15	476-482	479	477.25	480.83	481.75	523
16	482-488	485	483.25	486.83	487.75	529
17	488-494	491	489.25	492.83	493.75	535
18	494-500	497	495.25	498.83	499.75	541
19	500-506	503	501.25	504.83	505.75	547
20	506-512	509	507.25	510.83	511.75	553
21	512-518	515	513.25	516.83	517.75	559

U.S. TV FREQUENCIES
INCLUDING MID AND SUPER BAND

CHANNEL	BAND	CENTER FREQ.	VIDEO CARRIER	COLOR CARRIER	SOUND CARRIER	OSC. FREQ.
			UHF BAND			
22	518-524	521	519.25	522.83	523.75	565
23	524-530	527	525.25	528.83	529.75	571
24	530-536	533	531.25	534.83	535.75	577
25	536-542	539	537.25	540.83	541.75	583
26	542-548	545	543.25	546.83	547.75	589
27	548-554	551	549.25	552.83	553.75	595
28	554-560	557	555.25	558.83	559.75	601
29	560-566	563	561.25	564.83	565.75	607
30	566-572	569	567.25	570.83	571.75	613
31	572-578	575	573.25	576.83	577.75	619
32	578-584	581	579.25	582.83	583.75	625
33	584-590	587	585.25	588.83	589.75	631
34	590-596	593	591.25	594.83	595.75	637
35	596-602	599	597.25	600.83	601.75	643
36	602-608	605	603.25	606.83	607.75	649
37	608-614	611	609.25	612.83	613.75	655
38	614-620	617	615.25	618.83	619.75	661
39	620-626	623	621.25	624.83	625.75	667
40	626-632	629	627.25	630.83	631.75	673
41	632-638	635	633.25	636.83	637.75	679
42	638-644	641	639.25	642.83	643.75	685
43	644-650	647	645.25	648.83	649.75	691
44	650-656	653	651.25	654.83	655.75	697
45	656-662	659	657.25	660.83	661.75	703
46	662-668	665	663.25	666.83	667.76	709
47	668-674	671	669.25	672.83	673.75	715
48	674-680	677	675.25	678.83	679.75	721
49	680-686	683	681.25	684.83	685.75	727
50	686-692	689	687.25	690.83	691.75	733
51	692-698	695	693.25	696.83	697.75	739
52	698-704	701	699.25	702.83	703.75	745
53	704-710	707	705.25	708.83	709.75	751
54	710-716	713	711.25	714.83	715.75	757
55	716-722	719	717.25	720.83	721.75	763
56	722-728	725	723.25	726.83	727.75	769
57	728-734	731	729.25	732.83	733.75	775
58	734-740	737	735.25	738.83	739.75	781
59	740-746	743	741.25	744.83	745.75	787
60	746-752	749	747.25	750.83	751.75	793
61	752-758	755	753.25	756.83	757.75	799
62	758-764	761	759.25	762.83	763.75	805
63	764-770	767	765.25	768.83	769.75	811
64	770-776	773	771.25	774.83	775.75	817
65	776-782	779	777.25	780.83	781.75	823
66	782-788	785	783.25	786.83	787.75	829
67	788-794	791	789.25	792.83	793.75	835
68	794-800	797	795.25	798.83	799.75	841
69	800-806	803	801.25	804.83	805.75	847
70	806-812	809	807.25	810.83	811.75	853
71	812-818	815	813.25	816.83	817.75	859
72	818-824	821	819.25	822.83	823.75	865
73	824-830	827	825.25	828.83	829.75	871
74	830-836	833	831.25	834.83	835.75	877
75	836-842	839	837.25	840.83	841.75	883
76	842-848	845	843.25	846.83	847.75	889
77	848-854	851	849.25	852.83	853.75	895
78	854-860	857	855.25	858.83	859.75	901
79	860-866	863	861.25	864.83	865.75	907
80	866-872	869	867.25	870.83	871.75	913
81	872-878	875	873.25	876.83	877.75	919
82	878-884	881	879.25	882.83	883.75	925
83	884-890	887	885.25	888.83	889.75	931

BATTERY PACKS S097Y and S127Y FOR 9" AND 12"

The 9 and 12 battery packs are almost electrically identical to the S098Y model. They consist of a constant voltage, series type battery charger and appropriate interface and switching circuitry. See Figure 28.

The battery is charging when the set is in the "OFF" position, and the battery pack, attached to the set, has one cable lead connected to the car/boat input, the other to a 120 volt ac outlet. Charging ceases when the set is plugged into a 120 volt ac outlet and turned "ON". To operate the set on batteries, the plug removes from outlet and inserts firmly into the input provided on the battery pack.

In servicing a battery complaint, check for good electrical connection from battery pack ground pickup terminal to set. Check ground pickup in set as well as pack. Check for proper operation of S301 switch and check fuses, zener, transistors and batteries.

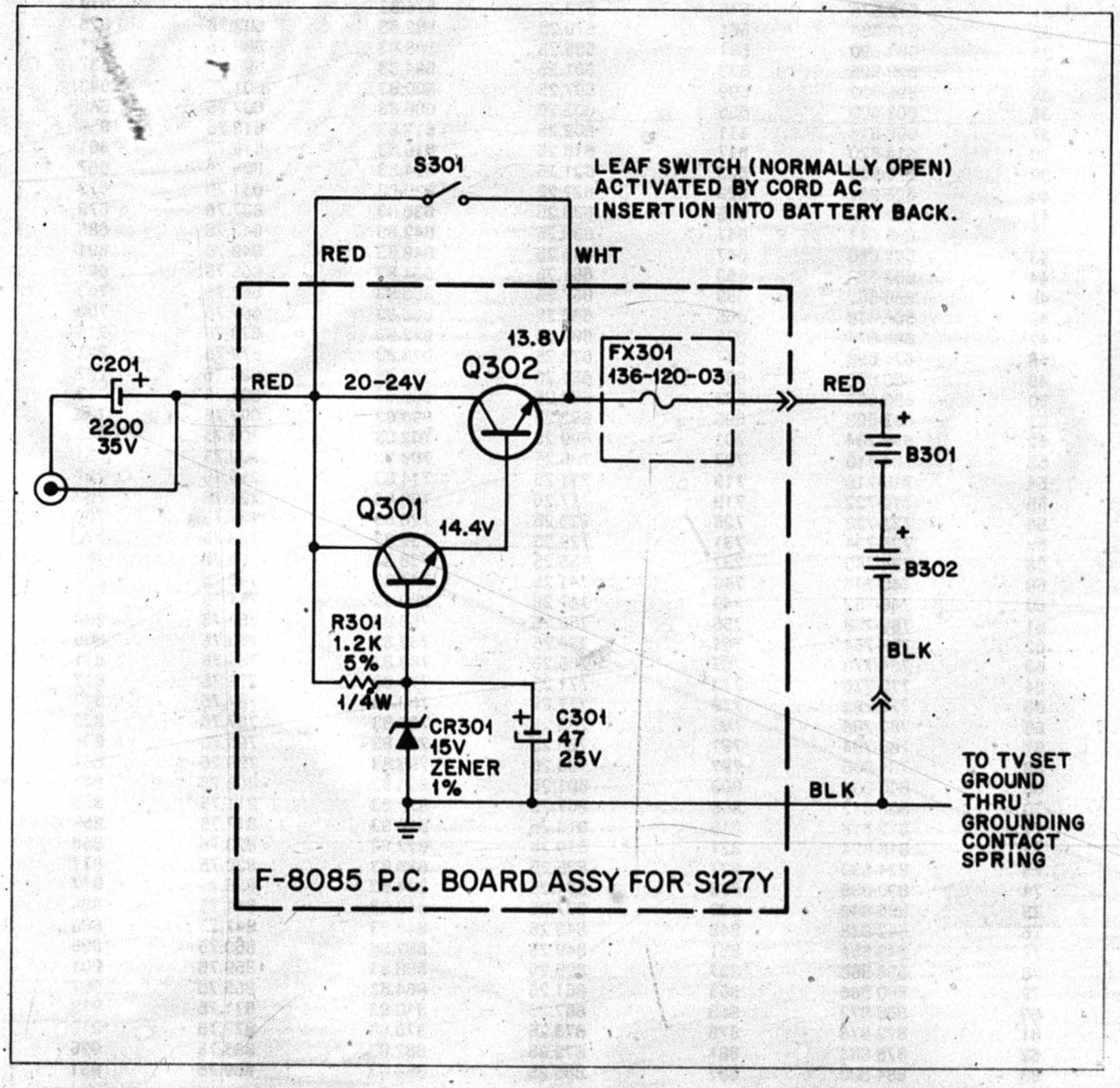
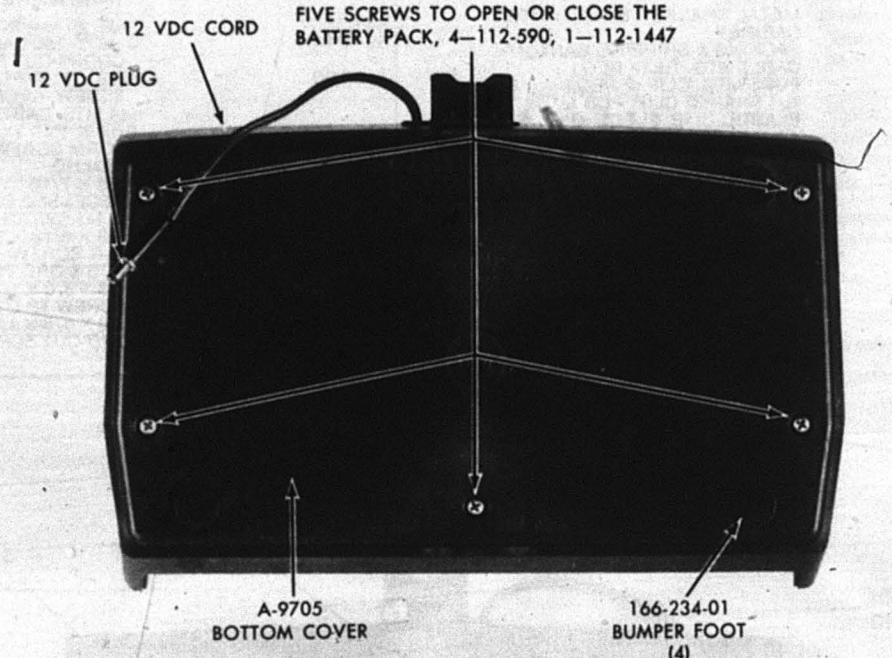
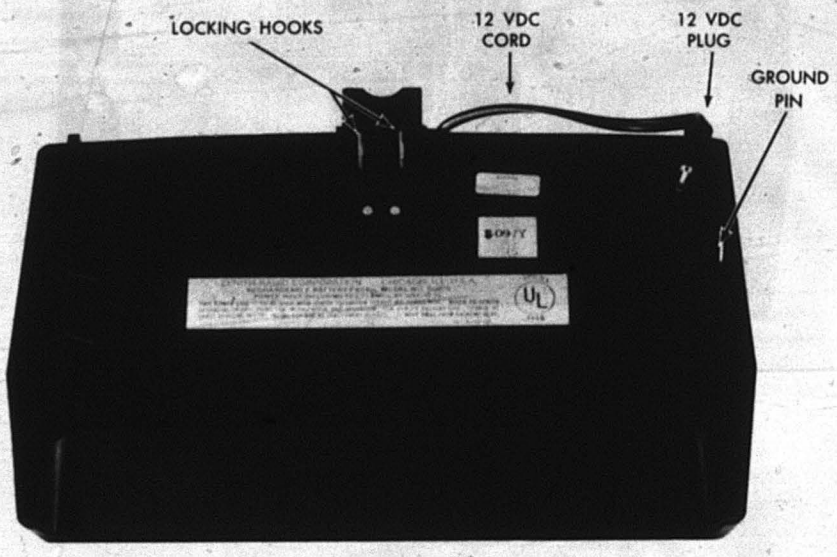


FIGURE 28 – 9" AND 12" BATTERY PACK DIAGRAM

S097Y BATTERY PACK

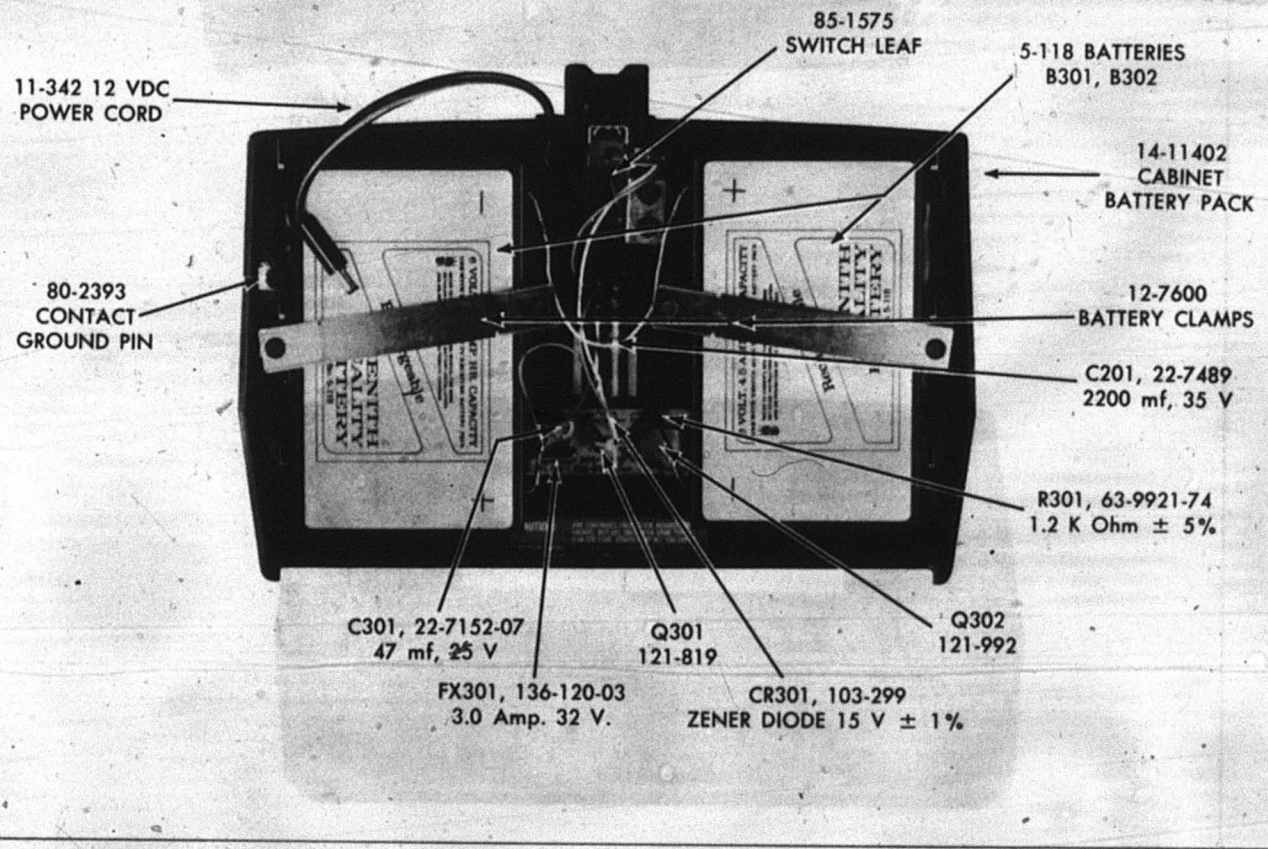




ACCESSORY BATTERY PACK MODEL S097Y

PART NO	REF CODE	DESCRIPTION
		COMPONENTS
A-5194-01		LATCH ASSEMBLY
A-9075		COVER ASSEMBLY
5-118		BATTERY (2 REQ.)
OR		
5-122		BATTERY (2 REQ.)
11-342		DC POWER CORD
12-7050		METAL PLATE, SWITCH MTG.
12-7600		METAL STAMPING, BATTERY HOLD-DOWN (2 REQ.)
12-7678		METAL BRACKET, SWITCH MTG.
14-11402		CABINET
16-5110		PACKING & SHIPPING CARTON
19-733-01		CABLE RTG. TIE (2 REQ.)
19-849-01		FUSE MTG. CLIP (2 REQ.)
19-854-01		"U" SHAPED CLIP, PCB MTG.
19-872		PLASTIC CLIP, ELECTROLYTIC MTG.
22-7152-07		47μF ELECTROLYTIC +100% -10% 25V.
22-7489		2200μF CAP +100% -10% 35V.
46-10147		LATCH KNOB
54-854		PALNUT CAP FASTENER (4 REQ.)
63-9921-74		1200Ω FILM RESISTOR ±5% 1/4W.
80-2393		GROUND CONTACT
85-1575		LEAF SWITCH
86-610		FEMALE TERMINAL (3 REQ.)

PART NO	REF CODE	DESCRIPTION
101-6550		INSTRUCTION LABEL
103-299		ZENER DIODE
121-819		TRANSISTOR, NPN SILICON
121-992		TRANSISTOR, NPN SILICON
136-120-03		3.0AMP NORMAL-LAG FUSE 32V.
166-234-01		FOOT (4 REQ.)
206-260		OPERATING MANUAL
220-525		PACKING MATERIAL (RIGHT)
220-525-01		PACKING MATERIAL (LEFT)
		HARDWARE
54-951		NUT, STAMPED LOCKING (2 REQ.)
69-421-01		3-48X0.250 CAD MACH SCREW, RECESSED CROSS-CUT PAN HD (2 REQ.)
112-590		8-18 × 1" TYPE B STAT BRONZE THD FORM SCREW, RECESSED CROSS-CUT PAN HD (4 MTS. CABT)
112-1447		8-18 × 1.25 TYPE B STAT BRONZE THD FORM SCREW, RECESSED CROSS-CUT PAN HD
112-2334		3-28 × 7/16 TYPE BT THD CUT SCREW, RECESSED CROSS-CUT PAN HD (2 MT SWITCH)
114-657		8-18 × 5/16 × 1/4AF HEX WASHER HD THD CUT SCREW, TYPE BT STAT BRNZ (3 MT PCB & GRD PLATE)
114-941		8-18 × 3/8 × 1/4AF HEX WSHR HD THD CUT SCREW TP BT STAT BRNZ (2 REQ.)
114-971		8-18 × 5/8 × 1/4AF TP BT HEX WASHER HD THD CUT SCREW (4 MT BATTERY)



REVERSE WIRING CHECK ON BATTERY PACK S097Y

An unknown quantity of S097Y battery packs used on 9" black and white M, N and Y lines have reversed wiring on the DC power plug. The problem is found in products with a date code of weeks 8, 9 and 10 of 1982.

To check for possible reversed wiring on DC power plug, proceed as follows:

1. Insert AC cord plug firmly into the socket of the battery pack.
2. Using a voltmeter, insert Positive test lead probe into center of DC power plug.
3. Place the Negative test lead at ground pickup terminal on battery pack. Refer to Figure 29.
4. Observe voltmeter for an approximate 12 volt dc reading. A 12V reading is an indication that wiring is correct.
5. If there is no voltage, reverse connection of meter leads. If voltage is detected on the shell (outside) of the dc power plug, this is indication of wrong wiring and steps 6 thru 10 must be performed.
6. Remove battery pack cover.
7. Remove AC cord plug from battery pack socket.
8. Discharge electrolytic C201 with jumper wire.
9. Unsolder and reverse DC power plug leads only on electrolytic terminals. See Figure 30.
10. Check for correct operation before replacing cover.
11. Reassemble back cover.

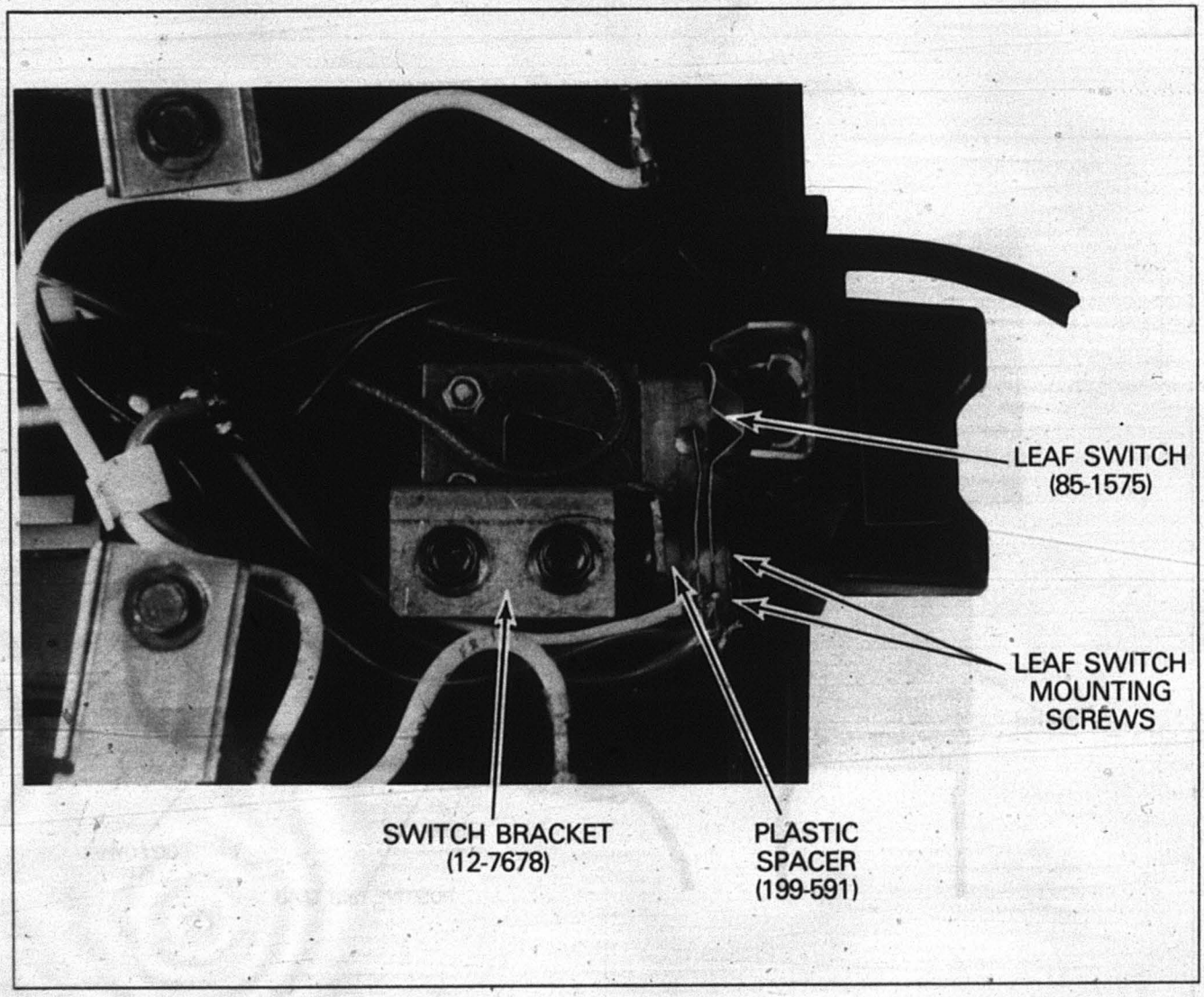


FIGURE 29 – REVERSE WIRE/LEAF SWITCH CHECK

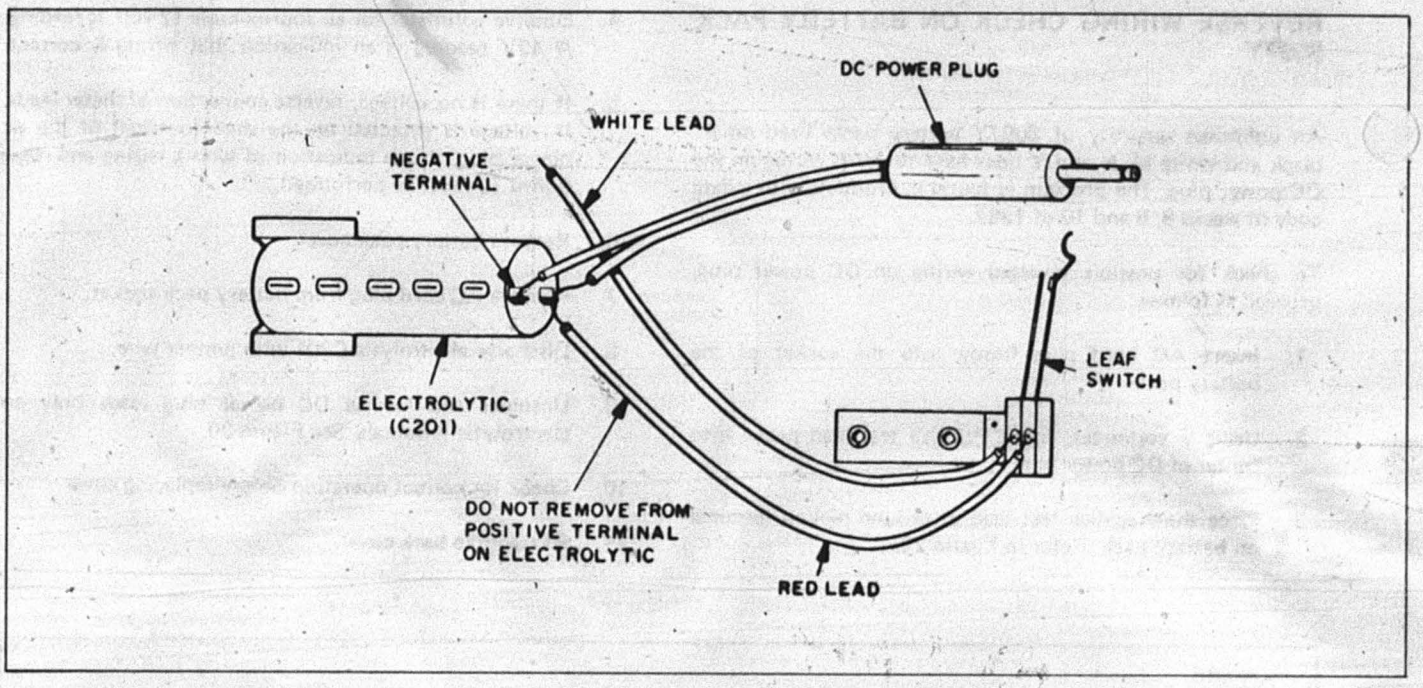


FIGURE 30 – ELECTROLYTIC LEADS REVERSAL

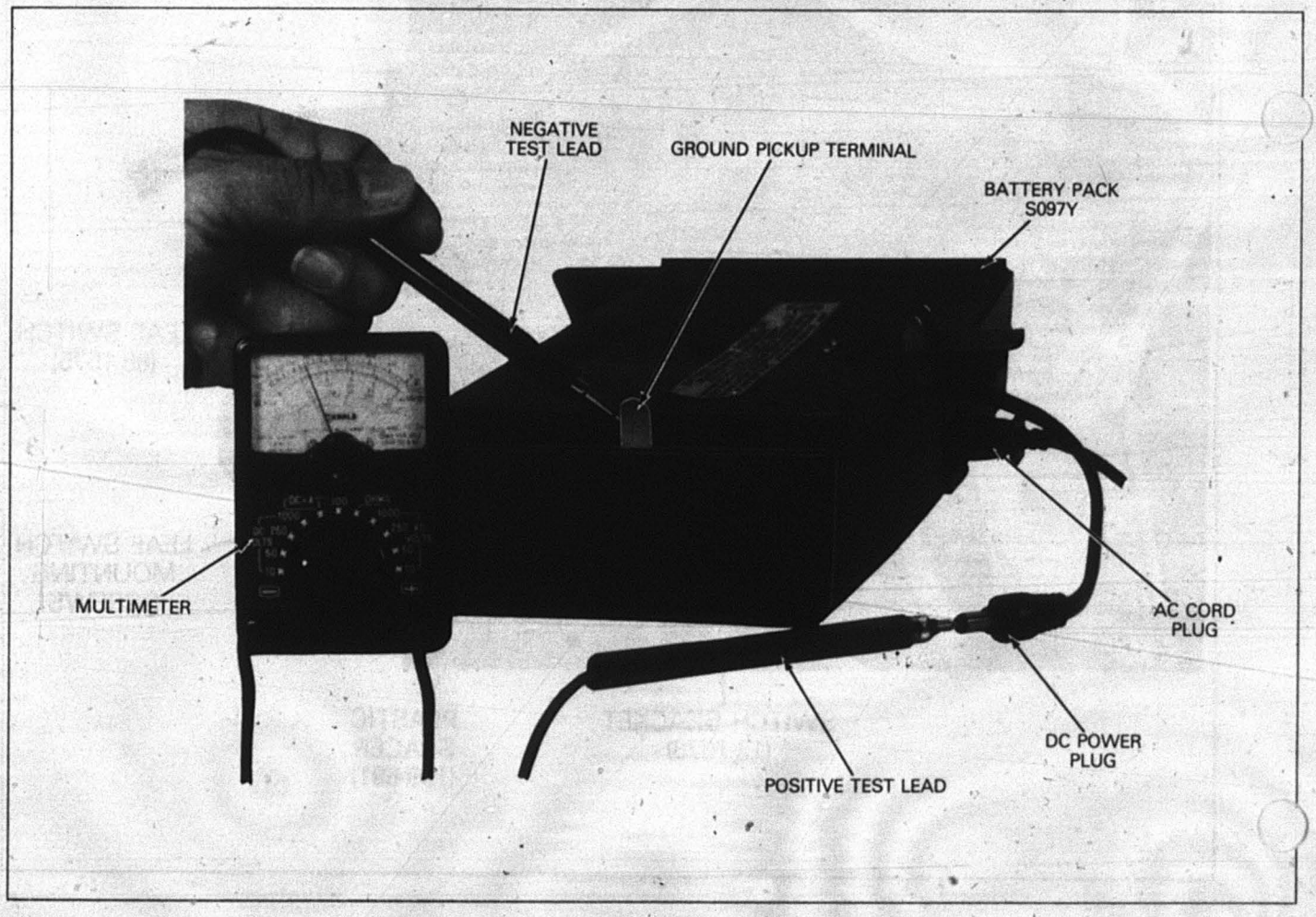


FIGURE 31 – LEAF SWITCH ADJUSTMENT

Leaf Switch Check

To check for poor electrical contact between the leaf switch and AC cord plug, insert AC cord plug into battery pack socket.

Proceed as follows:

1. Insert AC cord plug (.624" plug length) firmly into the socket on battery pack.
2. Using a voltmeter, insert Positive test lead probe into center of DC power plug.
3. Place the Negative test lead to ground pickup terminal on battery pack. Refer to Figure 30, Reverse Wire Check.
4. Observe meter for an approximate 12V DC reading:
   A. A 12V reading is an indication that AC cord plug has made good contact with leaf switch.
   B. No voltage is an indication that AC cord plug had no contact with leaf switch and leaf switch adjustment must be performed as indicated in "Leaf Switch Adjustment on S097Y Battery Pack" procedures.

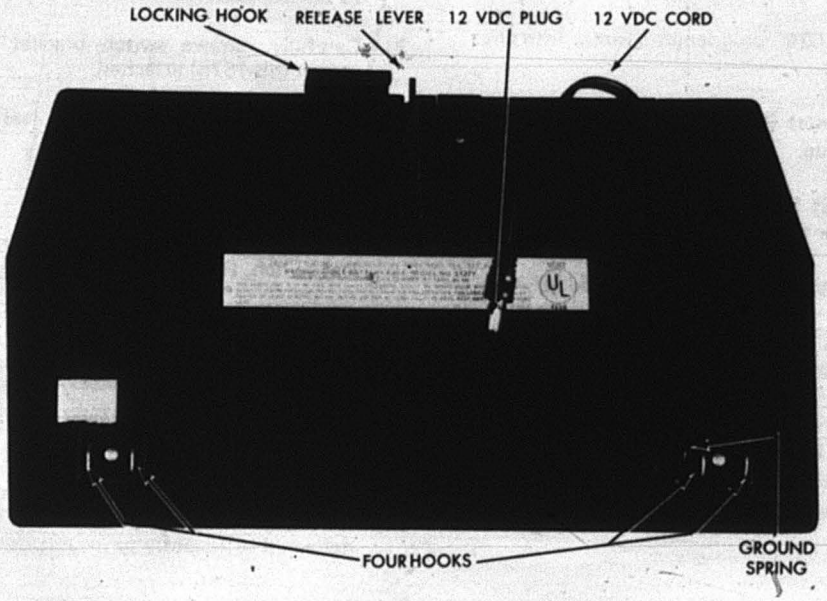
Leaf Switch Adjustment on S097Y Battery Pack

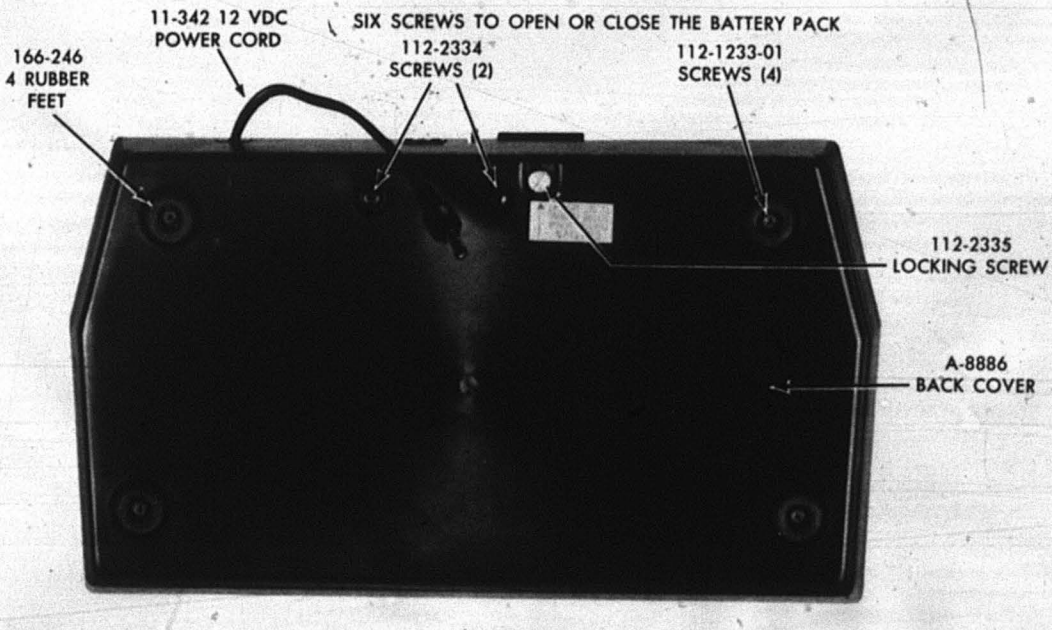
After opening the battery pack, proceed as follows to make adjustment on leaf switch (85-1575).

1. Remove two screws mounting switch bracket (12-7678) to bottom cabinet.
2. Carefully remove switch bracket (12-7678) with leaf switch (85-1575) attached.
3. Remove two screws mounting leaf switch (95-1575) to switch bracket (12-7678).
4. Carefully remove leaf switch.
5. Place 1/8" plastic spacers between switch bracket and leaf switch. Refer to Figure 31.

   NOTE: Spacers can be made from sleeve tubing (Zenith Part No. 199-591) and positioned on leaf switch mounting screws.
6. With spacers in place, reassemble above components in the reverse order.
7. Check by inserting minimum line cord plug (11-325), :624", into battery pack socket. Leaf switch must be deflected sufficiently to insure positive electrical contact.

S127Y BATTERY PACK

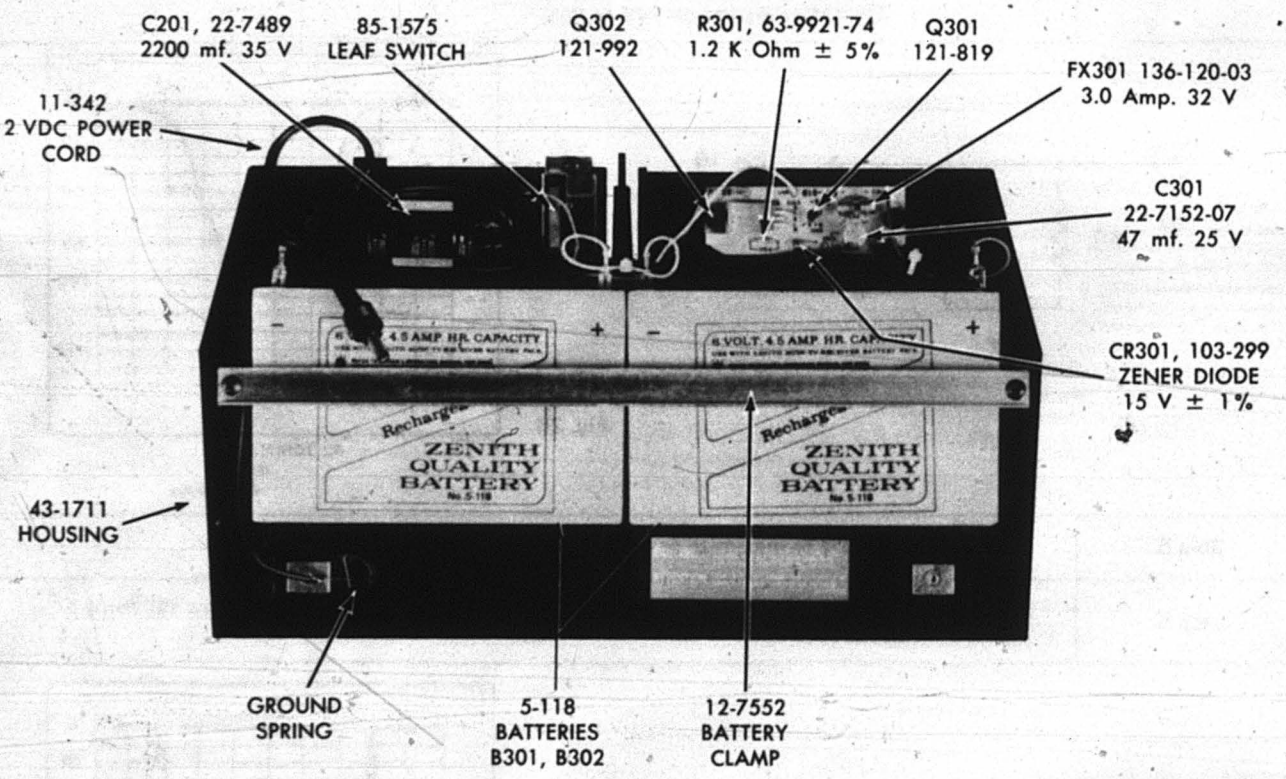




ACCESSORY BATTERY PACK MODEL S127Y

PART NO	REF CODE	DESCRIPTION
		COMPONENTS
A-8886		COVER ASSEMBLY
5-118		BATTERY (2 REQ.)
OR		
5-122		BATTERY (2 REQ.)
11-342		DC POWER CORD
12-7050		METAL PLATE, SWITCH MTG.
12-7552		METAL STAMPING, BATTERY HOLD DOWN
12-7581		METAL PROTECTIVE PLATE
16-5078		PACKING & SHIPPING CARTON
19-733-01		CABLE RTG. TIE (2 REQ.)
19-849-01		FUSE MTG. CLIP (2 REQ.)
19-854-01		"U" SHAPED CLIP
19-872		PLASTIC CLIP
19-911		CLIP, STAMPED METAL
22-7152-07		47μF ELECTROLYTIC +100% -10% 25V.
22-7489		2200μF CAP +100% -10% 35V.
43-1711		HOUSING
63-9921-74		1200Ω FILM RESISTOR ±5% 1/4W
80-2387		SPRING, FORMED WIRE
85-1575		LEAF SWITCH
86-610		FEMALE TERMINAL (4 REQ.)
86-758		FEMALE TERMINAL (2 REQ.)
101-6530		INSTRUCTION LABEL
103-299		ZENER DIODE

PART NO	REF CODE	DESCRIPTION
121-819		TRANSISTOR, NPN SILICON
121-992		TRANSISTOR, NPN SILICON
136-120-03		3.0AMP FUSE, NORMAL-LAG 32V.
166-246		FOOT (4 REQ.)
188-129		RETAINING RING
194-689		CUSHION PAD (7 REQ.)
206-261		OPERATING GUIDE
220-525		PACKING MATERIAL
220-525-01		PACKING MATERIAL
		HARDWARE
112-1165		6-20×5/16 TYPE BT STAT BRONZE THD CUT SCREW, RECESSED CROSS-CUT PAN HD
112-1233		8-18 × 3/8 TYPE BT THD CUT SCREW, RECESSED CROSS-CUT PAN HD (4 REQ.)
112-1233-01		8-18×5/8 TYPE BT STAT BRONZE THD CUT SCREW, RECESSED CROSS-CUT PAN HD (1 EA. MTS FOOT)
112-2334		3-28 × 7/16 TYPE BT THD CUT SCREW, RECESSED CROSS-CUT PAN HD (2 MTS. SWITCH)
112-2335		8-32 SPECIAL SCREW, SLOT HD
114-657		8-18 × 5/16 × 1/4AF TYPE BT THREAD CUTTING SCREW HEX WASHER HEAD (2 MT SWITCH)



I.F. ALIGNMENT 9NB1X

An external bias voltage will be needed for proper control of I.F. and R.F. AGC voltages during I.F. alignment. A special low impedance bias box is available under Part No. 950-179. This bias box can be operated on batteries or from an external 24 volt DC power supply.

Alignment of this receiver I.F. should be accomplished using the internal 12 volt DC supply.

Preliminary set up.

Refer to the appropriate schematic diagram, chassis layout and tuner drawings for reference test points.

1. Set the channel selector to Channel 13.
2. Connect a calibrated oscilloscope to Test Point C1 through a 10K isolation resistor; shielded lead to chassis nearby. Connect an external bias supply to Test Point "1".
3. Feed the sweep generator through a special terminating network as shown in Fig. 1B in Test Point "B" shield to the chassis. (TPC1 and TPB as shown on the schematics).

Step 1.	Set I.F. AGC to alignment bias voltage to 1.35 volt DC ±10%.
Step 2.	Adjust L1 (Bottom Core) of Fourth I.F. coil (T101) to maximize at 44MHz.
Step 3.	Adjust L2 (Top Core) of Fourth I.F. coil (T101) to maximize at 44MHz.
Step 4.	Readjust L1 (Bottom Core) first and then L2 (Top Core) to a wave shape shown in Fig. 2B. **Note:** a. 45MHz marker on 100%. b. 45.75MHz marker on 75% to 80%. c. 42.75MHz marker on 75% to 80%.

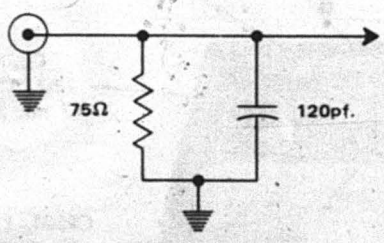


Fig. 1B

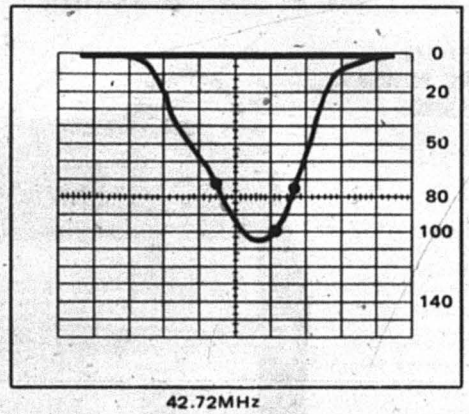


Fig. 2B

Step 5.	Tune coil (L107) to maximize at 45.75MHz.
Step 6.	Use the following test probe, (Fig. 3B), to the input of mixer coil in tuner while still using a 75 Ohm sweep generator.

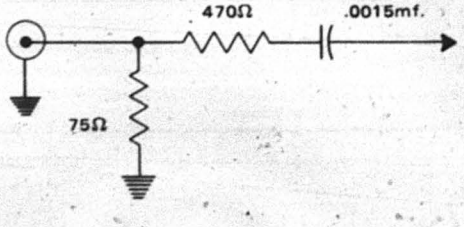


Fig. 3B

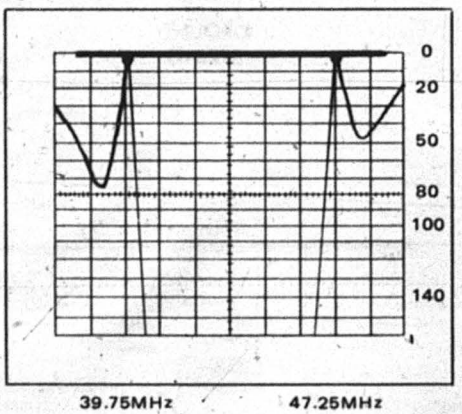
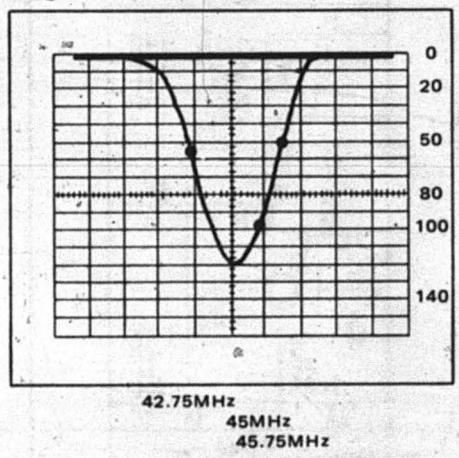


Fig. 4B

Step 7.	Set I.F. AGC to alignment bias voltage to 1.35 volt DC ±10%.
Step 8.	Align 39.75MHz and 47.25MHz traps by increasing oscilloscope gain by 20dB (10 times). 8–1 Adjust top core for on frequency. 8–2 Adjust bottom core for trap depth. See Figure 4B.
Step 9.	Set oscilloscope back to normal and adjust first I.F. coil to maximize at 44MHz.
Step 10.	Recheck overall pass band and traps. See Figure 5B. 10–1 If necessary readjust L2 (Top Core) of Fourth I.F. coil (T101) to bring 45.75MHz and 45MHz marker to 50% and 100% respectively. 10–2 Readjust L1 (Bottom Core) of Fourth I.F. coil (T101) for an overall pass band with maximum at 44MHz. See Figure 5B. 10–3 If necessary adjust L101.
Step 11.	Adjust AGC to obtain maximum gain and still obtain curves as shown in Figure 5B.

Fig. 5B



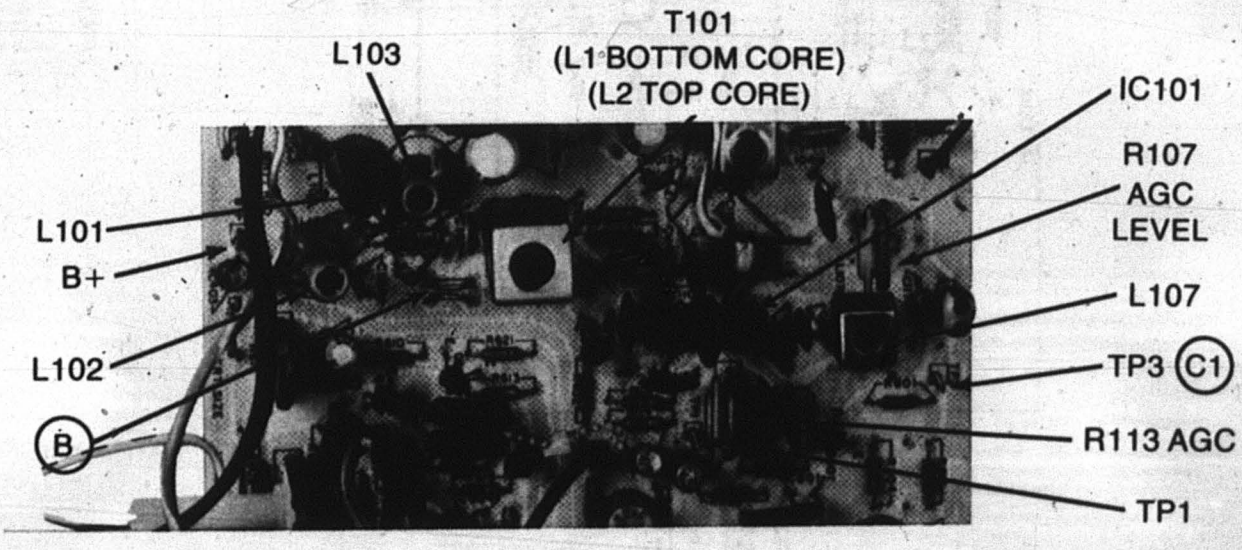


Fig. 6B – Alignment Location

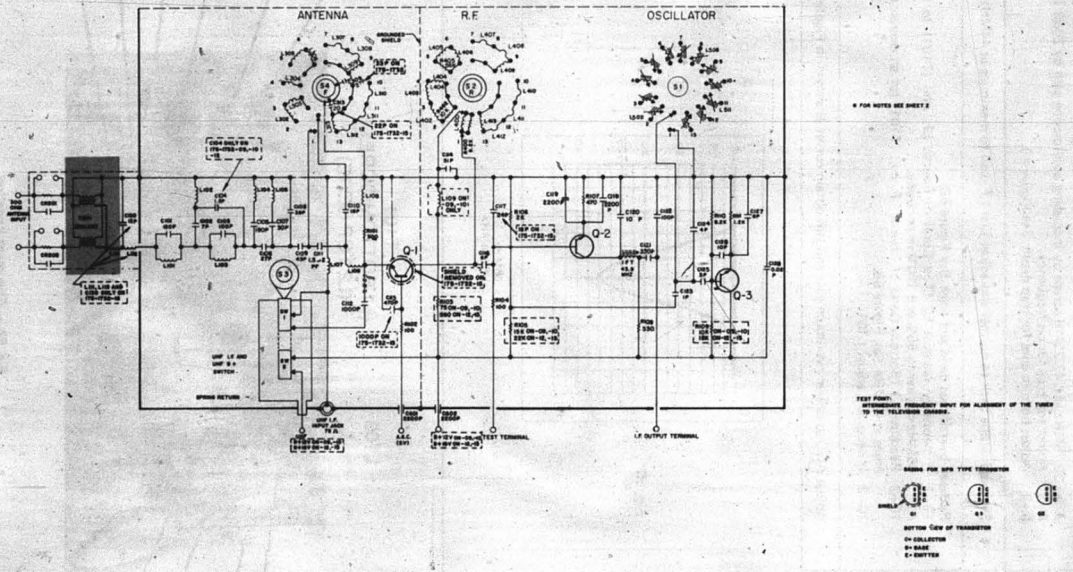


FIGURE 32 – VHF TUNER 175-1732-10, 10A

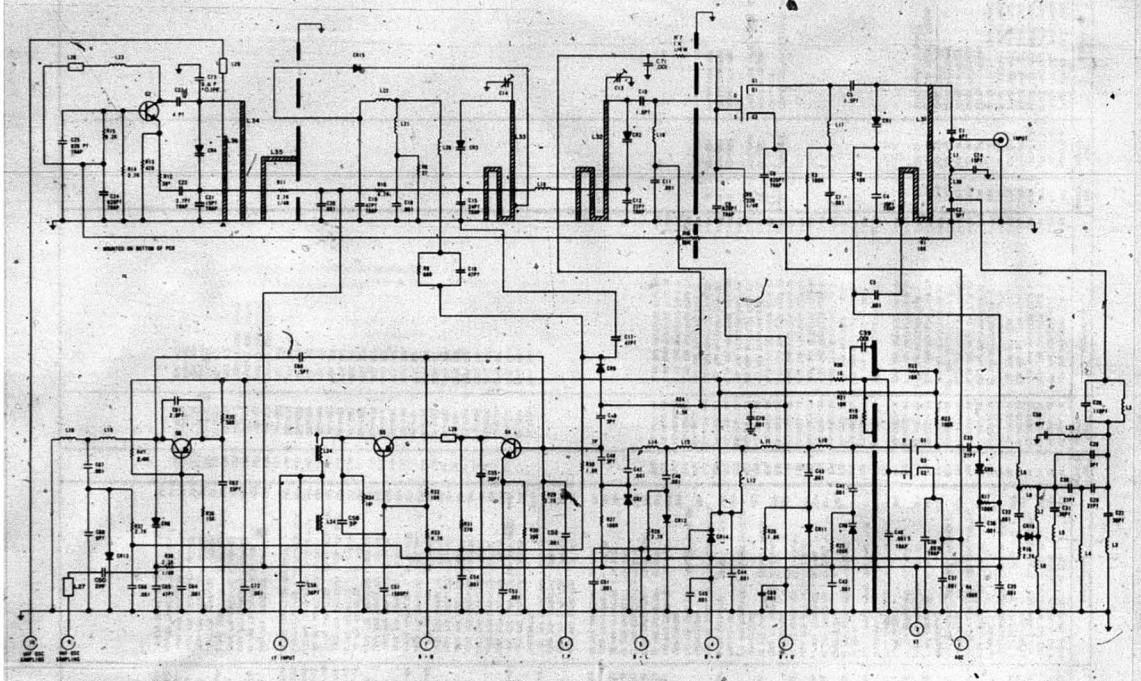


FIGURE 33A — VHF/UHF COMBINATION TUNER 175-2038

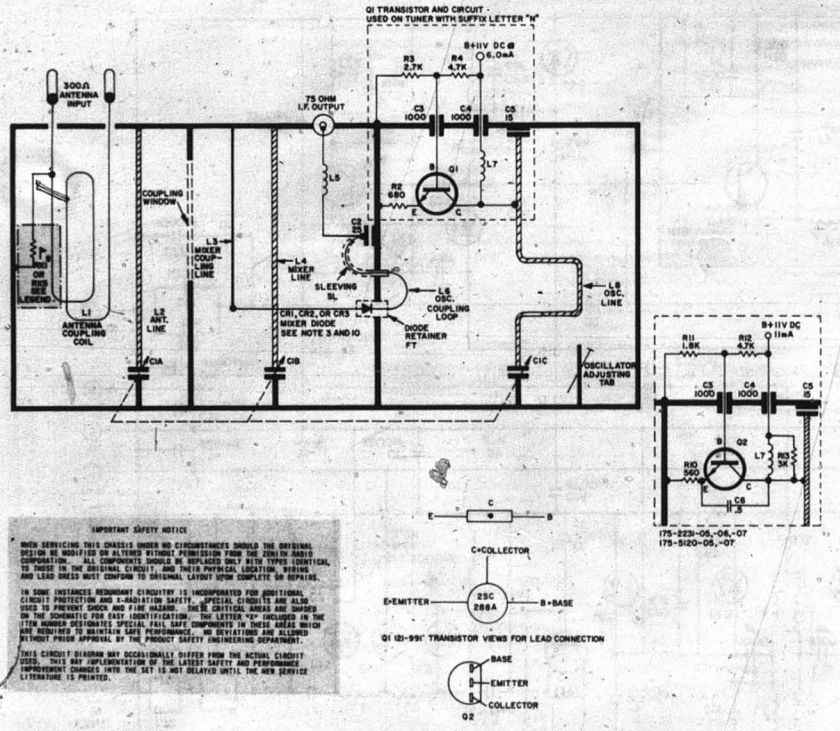
FIGURE 33B — VHF/UHF COMBINATION TUNER 175-2038

ITEM NUMBER	PART NUMBER	DESCRIPTION
C1	22-7648-10	8 PFD CAPACITOR ± .5% DISC 50V
C2	22-7648-07	5 PFD CAPACITOR ± .5% DISC 50V
C3	22-7872	1000 PFD CAPACITOR + 100-0% 50V
C4	22-7831-07	18PFD CAPACITOR ± 5% N750 LEADLESS TRAPEZOIDAL 50V
C5	22-7648-03	1.5 PFD CAPACITOR ± .25 PF DISC 50V
C6	20-4021	COIL STAMPED METAL, UHF LINE WITH TRIMMERS
C7	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C8	22-7503-01	820 PFD CAPACITOR + 80% -20% LEADLESS TRAPEZOIDAL 400V
C9	22-7503-01	820 PFD CAPACITOR + 80% -20% LEADLESS TRAPEZOIDAL 400V
C10	22-7648-02	1 PFD CAPACITOR ± .25 PF DISC 50V
C11	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C12	22-7831-06	27 PFD CAPACITOR ± 5% LEADLESS TRAPEZOIDAL 50V
C13	20-4027-01	COIL STAMPED METAL, UHF LINE WITH TRIMMERS
C14	20-4027-03	COIL STAMPED METAL, UHF LINE WITH TRIMMERS
C15	22-7831-02	24 PFD CAPACITOR 5% LEADLESS TRAPEZOIDAL 50V
C16	22-7648-09	47 PFD CAPACITOR ± 5% DISC 50V
C17	22-7648-29	47 PFD CAPACITOR ± 5% DISC 50V
C18	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C19	22-7831-05	47 PFD CAPACITOR ± 5% LEADLESS TRAPEZOIDAL 50V
C20	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C21	22-7831-01	15 PFD CAPACITOR ± 5% N330 LEADLESS TRAPEZOIDAL 50V
C22	22-7831	2.7 PFD CAPACITOR ± .25 NPO LEADLESS TRAPEZOIDAL 50V
C23	22-7835-03	4 PFD CAPACITOR ± .25 PF DISC 50V
C24	22-7830	820 PFD CAPACITOR + 80% -20% LEADLESS TRAPEZOIDAL 50V
C25	22-7830	820 PFD CAPACITOR + 80% -20% LEADLESS TRAPEZOIDAL 50V
C26	22-7648-37	110 PFD CAPACITOR ± 5% DISC 50V
C27	22-7648-23	30 PFD CAPACITOR ± 5% DISC 50V
C28	22-7648-05	3 PFD CAPACITOR ± .25 PF DISC 50V
C29	22-7648-22	27 PFD CAPACITOR ± 5% DISC 50V
C30	22-7648-22	27 PFD CAPACITOR ± 5% DISC 50V
C31	22-7648-23	30 PFD CAPACITOR ± 5% DISC 50V
C32	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C33	22-7648-22	27 PFD CAPACITOR ± 5% DISC 50V
C34		
C35	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C36	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C37	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C38	22-7803-02	1500 PFD CAPACITOR + 80% -20% LEADLESS TRAPEZOIDAL 400V
C39	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C40	22-7803-02	1500 PFD CAPACITOR +80-20% 400V
C41	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C42	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C43	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C44	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C45	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C46	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C47	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C48	22-7648-05	3 PFD CAPACITOR ± .25 PF DISC 50V
C49	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C50	22-7648-04	2 PFD CAPACITOR ± .25 PF DISC 50V
C51	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C52	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C53	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C54	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C55	22-7648-23	30 PFD CAPACITOR ± 5% DISC 50V
C56	22-7648-08	8 PFD CAPACITOR ± .5 PF DISC 50V
C57	22-7872-02	1500 PFD CAPACITOR + 100% -0% DISC 50V
C58	22-7838-06	3 PFD CAPACITOR ± .25 PF DISC N150 50V
C59	22-7648-38	56 PFD CAPACITOR ± 5% DISC 50V
C60	22-7648-03	1.5 PFD CAPACITOR ± .25 N150 DISC 50V
C61	22-7648-04	2 PFD CAPACITOR ± .25 PF N220 DISC 50V
C62	22-7838-04	33 PFD CAPACITOR NPO DISC 50V
C63		
C64	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C65	22-7642-28	47 PFD CAPACITOR N330 DISC 50V
C66	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C67	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C68	22-7648-08	8 PFD CAPACITOR ± .25 PF N220 DISC 50V
C69	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C70	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C71	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C72	22-7872	1000 PFD CAPACITOR + 100% -0% 50V
C73	22-7869-01	0.6 PFD CAPACITOR TUBULAR ± 0.1 PF 50V
C74	22-7648-16	15 PFD CAPACITOR ± 5% DISC 50V
C75		

ITEM NUMBER	PART NUMBER	DESCRIPTION
R1	63-10921-96	10K OHM RESISTOR FILM 5% 1/8W
R2	63-10921-96	10K OHM RESISTOR FILM 5% 1/8W
R3	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R4	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R5	63-10235-56	220 OHM RESISTOR FILM 5% 1/4W
R6	63-10922-02	1MΩ OHM RESISTOR FILM 5% 1/8W
R7	63-10235-72	1K OHM RESISTOR FILM 5% 1/4W
R8	63-10921-34	27 OHM RESISTOR FILM 5% 1/8W
R9	63-10921-68	680 OHM RESISTOR FILM 5% 1/8W
R10	63-10921-69	4.7K OHM RESISTOR FILM 5% 1/8W
R11	63-10235-82	2.2K OHM RESISTOR FILM 5% 1/4W
R12	63-10921-38	39 OHM RESISTOR FILM 5% 1/8W
R13	63-10921-64	470 OHM RESISTOR FILM 5% 1/8W
R14	63-10921-82	2.7K OHM RESISTOR FILM 5% 1/8W
R15	63-10921-61	8.2K OHM RESISTOR FILM 5% 1/8W
R16	63-10921-82	2.7K OHM RESISTOR FILM 5% 1/8W
R17	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R18		
R19	63-10921-56	220 OHM RESISTOR FILM 5% 1/8W
R20	63-10921-72	1K OHM RESISTOR FILM 5% 1/8W
R21	63-10922-02	10K OHM RESISTOR FILM 5% 1/8W
R22	63-10921-96	10K OHM RESISTOR FILM 5% 1/8W
R23	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R24	63-10921-76	1.5K OHM RESISTOR FILM 5% 1/8W
R25	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R26	63-10921-78	1.8K OHM RESISTOR FILM 5% 1/8W
R27	63-10922-20	100K OHM RESISTOR FILM 5% 1/8W
R28	63-10921-82	2.7K OHM RESISTOR FILM 5% 1/8W
R29	63-10921-82	2.7K OHM RESISTOR FILM 5% 1/8W
R30	63-10921-62	390 OHM RESISTOR FILM 5% 1/8W
R31	63-10921-56	220 OHM RESISTOR FILM 5% 1/8W
R32	63-10921-96	10K OHM RESISTOR FILM 5% 1/8W
R33	63-10921-88	4.7K OHM RESISTOR FILM 5% 1/8W
R34	63-10922-02	10K OHM RESISTOR FILM 5% 1/8W
R35	63-10921-88	560 OHM RESISTOR FILM 5% 1/8W
R36	63-10922	15K OHM RESISTOR FILM 5% 1/8W
R37	63-10921-82	2.7K OHM RESISTOR FILM 5% 1/8W
R38	63-10235-82	2.7K OHM RESISTOR FILM 5% 1/4W
R39	63-10921-78	1.8K OHM RESISTOR FILM 5% 1/8W
R40	63-10921-81	2.4K OHM RESISTOR FILM 5% 1/8W

ITEM NUMBER	PART NUMBER	DESCRIPTION
L1	20-4036	COIL RCF
L2	20-4045	COIL RCF
L3	20-4037	COIL RCF
L4	20-4038	COIL RCF
L5	20-4039	COIL RCF
L6	20-3690	COIL RCF
L7	20-4040	COIL RCF
L8	20-4041	COIL RCF
L9	20-4042	COIL RCF
L10	20-4043	COIL RCF
L11	20-4044	COIL RCF
L12	20-4057	COIL RCF
L13	20-4046	COIL RCF
L14	20-4047	COIL RCF
L15	20-4048	COIL RCF
L16	20-4049	COIL RCF
L17	20-4050	COIL RCF
L18	20-4051	COIL RCF
L19	20-4052	COIL RCF
L20	20-4053	COIL RCF
L21	20-4054	COIL RCF
L22	20-4055	COIL RCF
L23	20-4056	COIL RCF
L24	20-4034	COIL RCF TUNABLE
L25	20-4037	COIL RCF
L26	148-417	FERRITE CORE SLEEVE
L27	148-417	FERRITE CORE SLEEVE
L28	148-417	FERRITE CORE SLEEVE
L29	148-417	FERRITE CORE SLEEVE
L30	20-4036	COIL RCF
L31	20-4027	COIL RCF
L32	20-4027-01	COIL RCF
L33	20-4027-03	COIL RCF
L34	20-4028	COIL RCF
L35	12-807D	COIL RCF
L36	20-4062	COIL RCF

ITEM NUMBER	PART NUMBER	DESCRIPTION
CR1	103-176-01	DIODE VARIABLE CAPACITANCE
CR2	103-176-01	DIODE VARIABLE CAPACITANCE
CR3	103-176-01	DIODE VARIABLE CAPACITANCE
CR4	103-176-01	DIODE VARIABLE CAPACITANCE
CR5	103-293	DIODE VARIABLE CAPACITANCE
CR6	103-293	DIODE VARIABLE CAPACITANCE
CR7	103-293	DIODE VARIABLE CAPACITANCE
CR8	103-293	DIODE VARIABLE CAPACITANCE
CR9	103-306	DIODE SWITCHING
CR10	103-306	DIODE SWITCHING
CR11	103-306	DIODE SWITCHING
CR12	103-306	DIODE SWITCHING
CR13	103-306	DIODE SWITCHING
CR14	103-142	DIODE LOW VOLTAGE GENERAL
CR15	103-63	DIODE HIGH FREQUENCY
Q1	121-1038	TRANSISTOR FIELD EFFECT, N CHANNEL DUAL GATE
Q2	121-551	TRANSISTOR NPN
Q3	121-1066	TRANSISTOR FIELD EFFECT, N CHANNEL DUAL GATE
Q4	121-685	TRANSISTOR NPN
Q5	121-984	TRANSISTOR PNP
Q6	121-984	TRANSISTOR PNP



IMPORTANT SAFETY NOTICE

WHEN SERVICING THIS CHASSIS UNDER NO CIRCUMSTANCES SHOULD THE ORIGINAL DESIGN BE MODIFIED OR ALTERED WITHOUT PERMISSION FROM THE ZENITH RADIO CORPORATION. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT, AND THEIR PHYSICAL LOCATION, WIRING AND LEAD DRESS MUST CONFORM TO ORIGINAL LAYOUT UPON COMPLETE OR REPAIRS.

IN SOME INSTANCES REDUNDANT CIRCUITRY IS INCORPORATED FOR ADDITIONAL CIRCUIT PROTECTION AND X-RADIATION SAFETY. SPECIAL CIRCUITS ARE ALSO USED TO PREVENT SHOCK AND FIRE HAZARD. THESE CRITICAL AREAS ARE SHADED ON THE SCHEMATIC FOR EASY IDENTIFICATION. THE LETTER "F" INCLUDED IN THE ITEM NUMBER DESIGNATES SPECIAL FAIL SAFE COMPONENTS IN THESE AREAS WHICH ARE REQUIRED TO MAINTAIN SAFE PERFORMANCE. NO DEVIATIONS ARE ALLOWED WITHOUT PRIOR APPROVAL BY THE PRODUCT SAFETY ENGINEERING DEPARTMENT.

THIS CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT USED. THIS MAY IMPLEMENTATION OF THE LATEST SAFETY AND PERFORMANCE IMPROVEMENT CHANGES INTO THE SET IS NOT DELAYED UNTIL THE NEW SERVICE LITERATURE IS PRINTED.

ITEM NUMBER	PART NUMBER	DESCRIPTION	RATING
C1A	PART OF ROTOR ASSEMBLY	ANTENNA TUNING	PART OF ROTOR ASSEMBLY
C1B		MIXER TUNING	
C1C		OSCILLATOR TUNING	
C2	22-7301*	25 pF LEADLESS DISC CAPACITOR ±5%	50V
C3	22-7302	1000 pF FEED THRU CAPACITOR G.M.V.	500V
C4	22-7302	1000 pF FEED THRU CAPACITOR G.M.V.	500V
C5	22-7303	15 pF LEADLESS DISC CAPACITOR ±5%	50V
C6		.5 pF CAPACITOR (GIMMICK TYPE)	
R1**	63-0520-02	3.3 OHM WIREWOUND RESISTOR ±20% (HOT CHASSIS ONLY)	1/2W
R2	63-8804	680 OHM RESISTOR ±5% FILM TYPE	1/2W
R3	63-8798	2.7K OHM RESISTOR ±5% FILM TYPE	1/4W
R4	63-8820	4.7K OHM RESISTOR ±5% FILM TYPE	1/4W
R5**	63-0520	1.5 OHM WIREWOUND RESISTOR ±20% (COOLO CHASSIS ONLY)	1/2W
R6	63-8792	2.2K OHM RESISTOR 5% FILM TYPE	1/4W
R7	63-8793	5.6K OHM RESISTOR 5% FILM TYPE	1/4W
R8	63-10353-36	220 OHM RESISTOR 5% FILM TYPE	1/4W
R9	63-10353-36	220 OHM RESISTOR 5% FILM TYPE	1/4W
R10		560 OHM RESISTOR 5% FILM TYPE	1/4W
R11		1.8K OHM RESISTOR 5% FILM TYPE	1/4W
R12		4.7K OHM RESISTOR 5% FILM TYPE	1/4W
R13		3K OHM RESISTOR 5% FILM TYPE	1/4W
R14		220 OHM RESISTOR 5% FILM TYPE	1/4W
R15		2K OHM RESISTOR 5% FILM TYPE	1/4W
R16		10K OHM RESISTOR 5% FILM TYPE	1/4W
R17		820 OHM RESISTOR 5% FILM TYPE	1/4W
R18		510 OHM RESISTOR 5% FILM TYPE	1/4W
R19		1.5K OHM RESISTOR 5% FILM TYPE	1/4W
R20		6.8K OHM RESISTOR 5% FILM TYPE	1/4W
R21		1.2K OHM RESISTOR 5% FILM TYPE	1/4W
L1	20-3621	ANTENNA COUPLING COIL	
L2		ANTENNA LINE	
L3	20-3648	MIXER COUPLING LINE	
L4		MIXER LINE	
L5	20-3649	I.F. OUTPUT COIL	
L6		OSC. COUPLING LOOP (PART OF CR1 DIODE)	
L7	20-3650	R.F. CHOKE COIL	
L8		OSC. LINE	
CR1	103-61	MIXER DIODE (SD82A)	
CR2	103-276	MIXER DIODE (1SS16) HOT CARRIER	
CR3		MIXER DIODE (1S1926) HOT CARRIER	
Q1	121-991	TRANSISTOR NPN, PLASTIC (2SC288A)	
Q2	121-551	TRANSISTOR NPN, PLASTIC (MOTOROLA MPS-H10)	
FT	194-184	INSULATOR, DIODE RETAINER	
SL	79-203	TEFLON SLEEVING .37 INCH LONG	

FIGURE 34 — UHF TUNER 175-2231-06

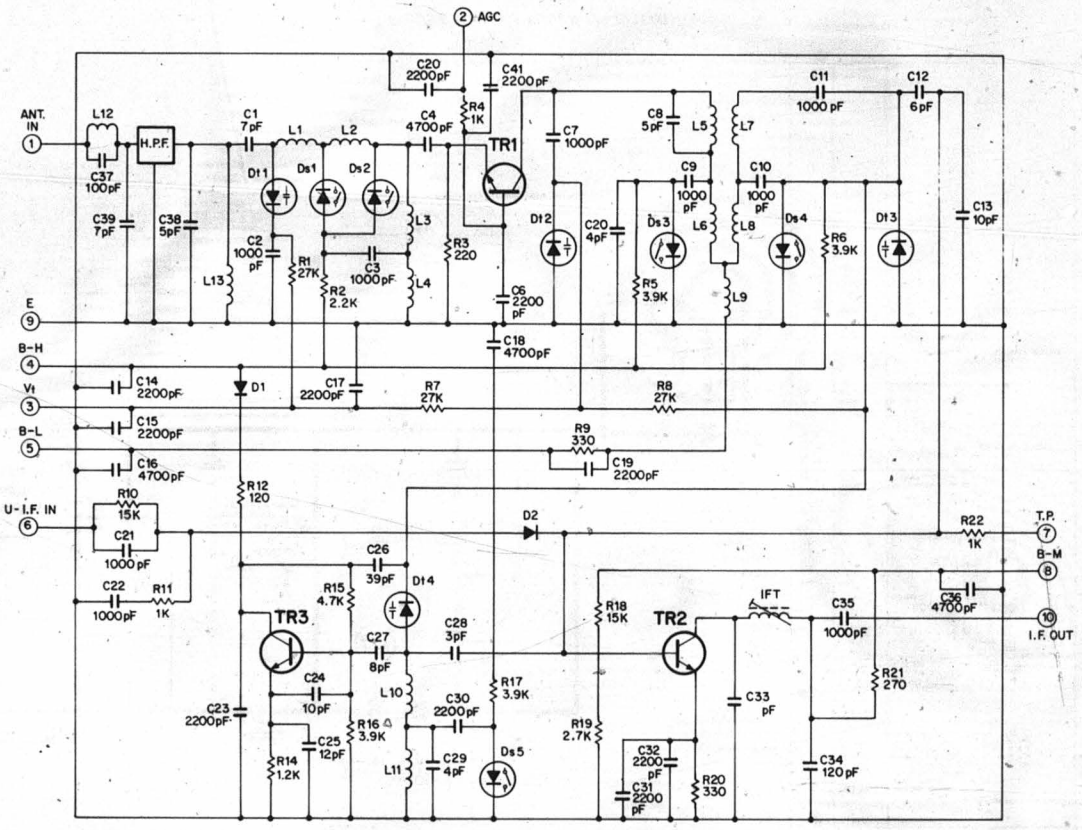


FIGURE 35 – VHF TUNER 175-2238

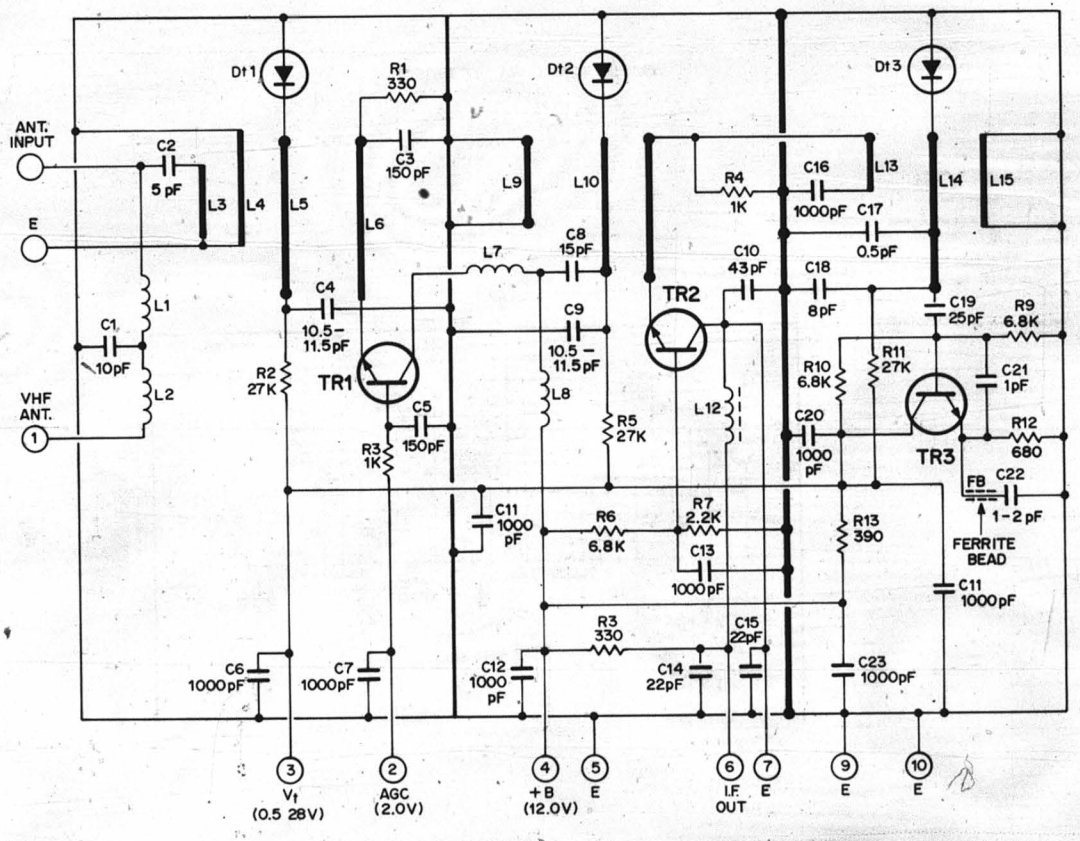


FIGURE 36 – UHF TUNER 175-2239

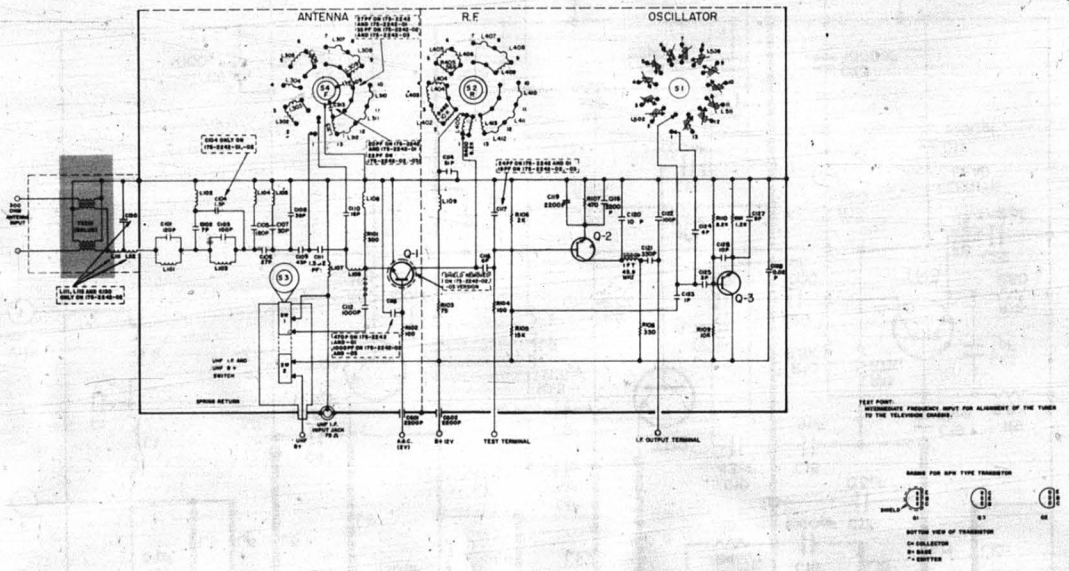


FIGURE 37 – VHF TUNER 175-2242

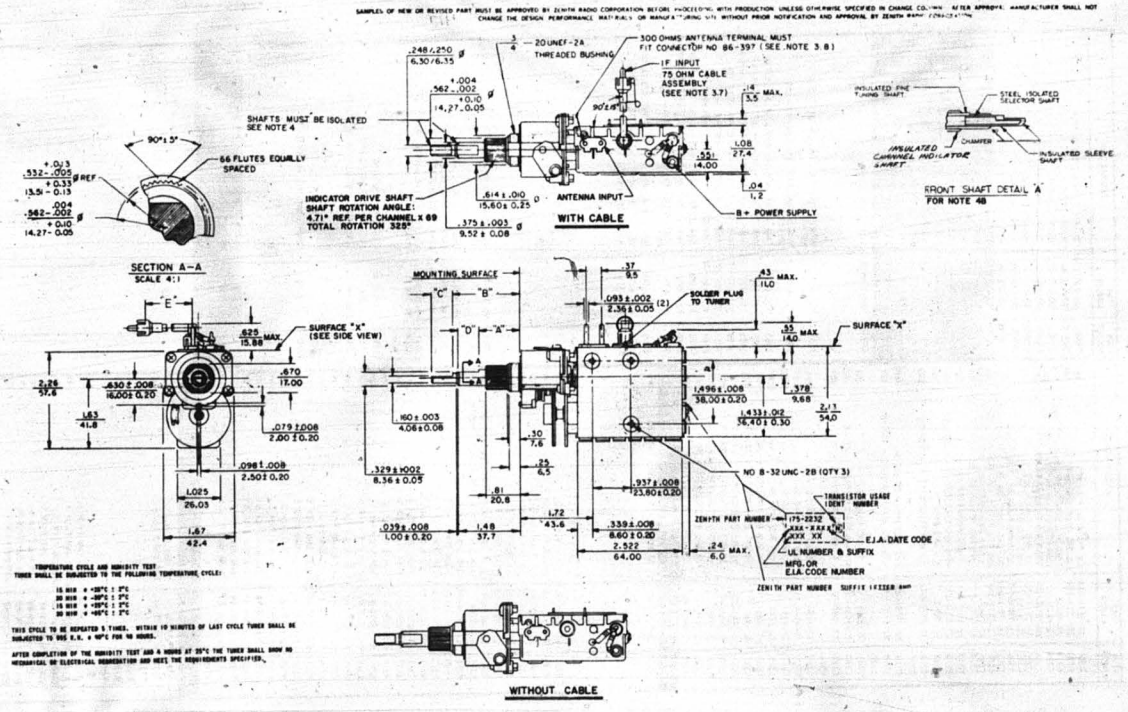
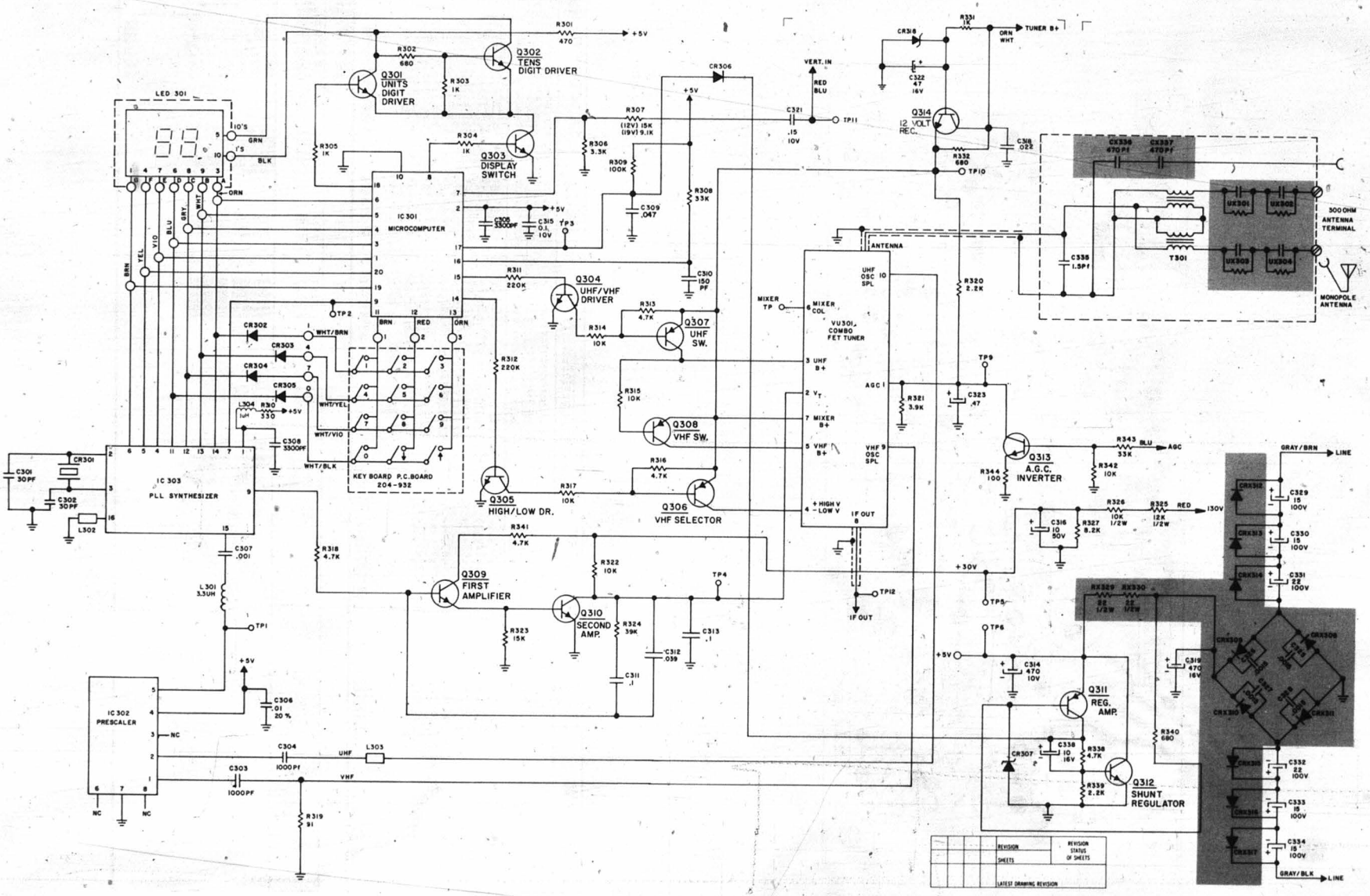


FIGURE 38 – UHF TUNER 175-5120-07

175-2260/175-2261 TUNING SYSTEM SCHEMATIC



175-2260/175-2261 LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C301	22-7621-21A	30 PFD DISC ± 5% NPO	50V
C302	22-7621-21A	30 PFD DISC ± 5% NPO	50V
C303	22-7615A	1000 PFD DISC + 80-20%	50V
C304	22-7615	1000 PFD DISC + 80-20%	50V
C305	22-7802-03	3300 PFD TUBULAR ± 20%	50V
C306	22-7614-24	.01 MFD DISC ± 20%	50V
C307	22-7615A	1000 PFD DISC + 80-20%	50V
C308	22-7802-03	3300 PFD TUBULAR ± 20%	50V
C309	22-7615-10A	.047 MFD DISC ± 80-20%	50V
C310	22-7620-38A	150 PFD DISC ± 10% NPO	50V
C311	22-7547	.1 MFD POLYESTER 10%	50V
C312	22-7202	.039 MFD POLYESTER 10%	50V
C313	22-7547	.1 MFD POLYESTER 10%	50V
C314	22-7150-11	470 MFD ELECTROLYTIC + 100-10%	10V
C315	22-3652	0.1 MFD DISC	10V
C316	22-7153-04	10 MFD ELECTROLYTIC + 100-10%	50V
C317			
C318	22-7615-08A	.022 MFD DISC + 80-20%	50V
C319	22-7151-11	470 MFD ELECTROYLYTIC + 100-10%	16V
C320			
C321	22-5251	.15 MFD DISC 20%	10V
C322	22-7151-07	47 MFD ELECTROLYTIC + 100-10%	16V
C323	22-7390-02	.47 MFD ELECTROLYTIC ± 20%	50V
C324			
C325	22-7244	1500 PFD DISC 5%	500V
C326	22-7244	1500 PFD DISC 5%	500V
C327	22-7244	1500 PFD DISC 5%	500V
C328	22-7244	1500 PFD DISC 5%	500V
C329	22-7888	15 MFD ELECTROLYTIC ± 20%	100V
C330	22-7888	15 MFD ELECTROLYTIC ± 20%	100V
C331	22-7864-06	22 MFD ELECTROLYTIC ± 20%	100V
C332	22-7864-06	22 MFD ELECTROLYTIC ± 20%	100V
C333	22-7888	15 MFD ELECTROLYTIC ± 20%	100V
C334	22-7888	15 MFD ELECTROLYTIC ± 20%	100V
C335	22-7848-03	1.5 PFD DISC ± .25 PFD	50V
■ CX336	22-7431-02	470 PFD DISC ± 20%	220VAC
■ CX337	22-7431-02	470 PFD DISC ± 20%	220VAC
C338	22-7151-04	10 MFD ELECTROLYTIC + 100-10%	16V
R301	63-10235-64	470 OHM FILM 5%	1/4W
R302	63-10235-68	680 OHM FILM 5%	1/4W
R303	63-10235-72	1K OHM FILM 5%	1/4W
R304	63-10235-72	1K OHM FILM 5%	1/4W
R305	63-10235-72	1K OHM FILM 5%	1/4W
R306	63-10235-84	3.3K OHM FILM 5%	1/4W
R307	63-10235-95	9.1K OHM FILM 5% FOR 175-22 19"TV	1/4W
R307	63-10236	15K OHM FILM 5% FOR 175-22 12"TV	1/4W
R308	63-10236-08	33K OHM FILM 5%	1/4W
R309	63-10236-20	100K OHM FILM 5%	1/4W
R310	63-10235-60	330 OHM FILM 5%	1/4W
R311	63-10236-28	220 K OHM FILM 5%	1/4W
R312	63-10236-28	220K OHM FILM 5%	1/4W
R313	63-10235-88	4.7K OHM FILM 5%	1/4W
R314	63-10235-96	10K OHM FILM 5%	1/4W
R315	63-10235-96	10K OHM FILM 5%	1/4W
R316	63-10235-88	4.7K OHM FILM 5%	1/4W
R317	63-10235-96	10K OHM FILM 5%	1/4W
R318	63-10235-88	4.7K OHM FILM 5%	1/4W
R319	63-10235-47	91 OHM FILM 5%	1/4W
R320	63-10235-80	2.2K OHM FILM 5%	1/4W
R321	63-10235-86	3.9K OHM FILM 5%	1/4W
R322	63-10235-96	10K OHM FILM 5%	1/4W
R323	63-10236	15K OHM FILM 5%	1/4W
R324	63-10236-10	39K OHM FILM 5%	1/4W
R325	63-10243-98	12K OHM FILM 5%	1/2W
R326	63-10243-96	10K OHM FILM 5%	1/2W
R327	63-10235-84	8.2K OHM FILM 5%	1/4W
R328			
■ RX329	63-10565-32	22 OHM FILM 5% SPECIAL	1/2W
■ RX330	63-10565-32	22 OHM FILM 5% SPECIAL	1/2W
R331	63-10235-72	1K OHM FILM 5%	1/4W
R332	63-10235-68	680 OHM FILM 5%	1/4W
R333			
R334			
R335			
R336			
R337			
R338	63-10235-88	4.7K OHM FILM 5%	1/4W
R339	63-10235-80	2.2K OHM FILM 5%	1/4W
R340	63-10235-68	680 OHM FILM 5%	1/4W
R341	63-10235-86	4.7K OHM FILM 5%	1/4W
R342	63-10235-96	10K OHM FILM 5%	1/4W
R343	63-10236-08	33K OHM FILM 5%	1/4W
R344	63-10235-48	100 OHM FILM 5%	1/4W

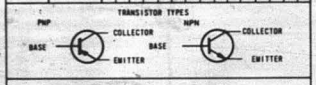
ITEM NUMBER	PART NUMBER	DESCRIPTION
CR301	224-00011-01	QUARTZ CRYSTAL, OSCILLATOR
CR302	103-142-01	DIODE, GENERAL
CR303	103-142-01	DIODE, GENERAL
CR304	103-142-01	DIODE, GENERAL
CR305	103-142-01	DIODE, GENERAL
CR306	103-142-01	DIODE, GENERAL
CR307	103-279-08	DIODE, ZENER 4.3 V
■CRX308	103-261-04A	DIODE, SILICON, LOW VOLT.
■CRX309	103-261-04A	DIODE, SILICON, LOW VOLT.
■CRX310	103-261-04A	DIODE, SILICON, LOW VOLT.
■CRX311	103-261-04A	DIODE, SILICON, LOW VOLT.
CRX312	103-295-02A	DIODE, GENERAL
CRX313	103-295-02A	DIODE, GENERAL
CRX314	103-295-02A	DIODE, GENERAL
CRX315	103-295-02A	DIODE, GENERAL
CRX316	103-295-02A	DIODE, GENERAL
CRX317	103-295-02A	DIODE, GENERAL
CR318	103-279-22	DIODE, ZENER 13V
Q301	121-819	TRANSISTOR, NPN, SILICON UNITS DIGIT DRIVER
Q302	121-819	TRANSISTOR, NPN, SILICON TENS DIGIT DRIVER
Q303	121-819	TRANSISTOR, NPN SILICON DISPLAY SWITCH
Q304	121-975	TRANSISTOR, NPN SILICON UHF/VHF DRIVER
Q305	121-975	TRANSISTOR, NPN SILICON HIGH LOW DRIVER
Q306	121-699-01	TRANSISTOR, PNP SILICON VHF SELECTOR
Q307	121-699-01	TRANSISTOR, PNP SILICON UHF SWITCH
Q308	121-699-01	TRANSISTOR, PNP SILICON VHF SWITCH
Q309	121-1042	TRANSISTOR, NPN SILICON FIRST AMPLIFIER
Q310	121-499	TRANSISTOR, NPN SILICON SECOND AMPLIFIER
Q311	121-699	TRANSISTOR, PNP SILICON, REGULATOR AMPLIFIER
Q312	121-1035	TRANSISTOR, NPN SILICON SHUNT REGULATOR
Q313	121-975	TRANSISTOR, NPN, SILICON AGC INVERTER
Q314	121-1035	TRANSISTOR NPN SILICON REGULATOR
T301	95-3508-01	BALUN TRANSFORMER
L301	20-3907-06	COIL, 3.3 uH
L302	149-417-01	FERRITE CORE BEAD
L303	149-417	FERRITE CORE BEAD
LED301	75-00034	L.E.D. DISPLAY MODULE, RED
L304	20-3907A	COIL, 1.0 uH
IC301	221-216-01	I.C. MICROCOMPUTER
IC302	221-255	I.C. UHF/VHF PRESCALER
IC303	221-144	I.C. PLL, SYNTHESIZER, MONOLITHIC
VU301	175-2038	TUNER, VHF-UHF VARACTOR
■ UX301	105-146	ANTENNA ISOLATION NETWORK
■ UX302	105-146	ANTENNA ISOLATION NETWORK
■ UX303	105-146	ANTENNA ISOLATION NETWORK
■ UX304	105-146	ANTENNA ISOLATION NETWORK

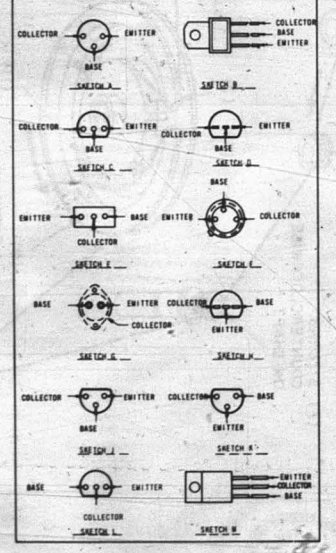
SEMI CONDUCTOR OUTLINE

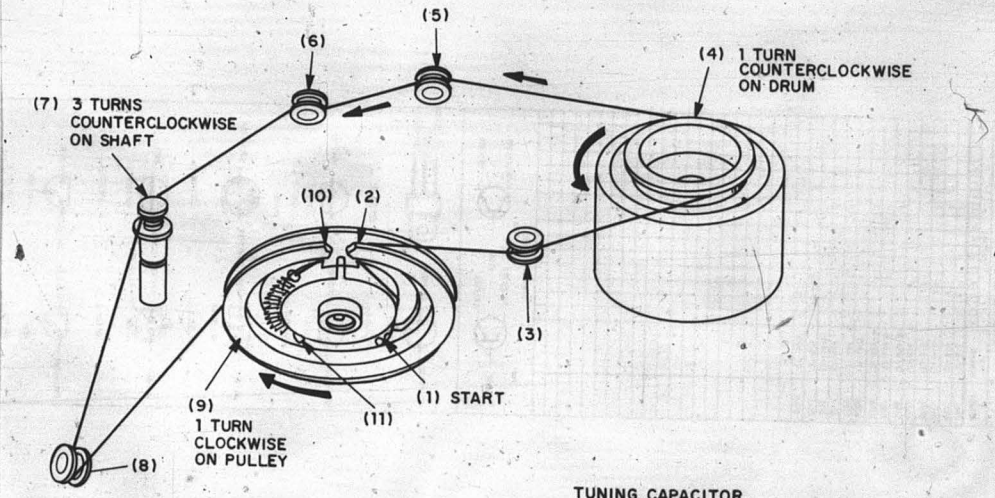
BOTTOM VIEWS OF TRANSISTORS

Q NUMBER	PART NUMBER	SKETCHES A	B	C	D	E	F	G	H	J	K	L	M	*	*
Q301	121-819			X	X					X					
Q302	121-819 L			X	X					X					
Q303	121-819			X	X					X					
Q304	121-975				X										
Q305	121-975				X										
Q306	121-699-01				X					X					
Q307	121-699-01				X					X					
Q308	121-699-01				X					X					
Q309	121-1042				X										
Q310	121-499				X					X					
Q311	121-699				X					X					
Q312	121-1035											X			
Q313	121-975				X										
Q314	121-1035											X			

TRANSISTOR TYPES



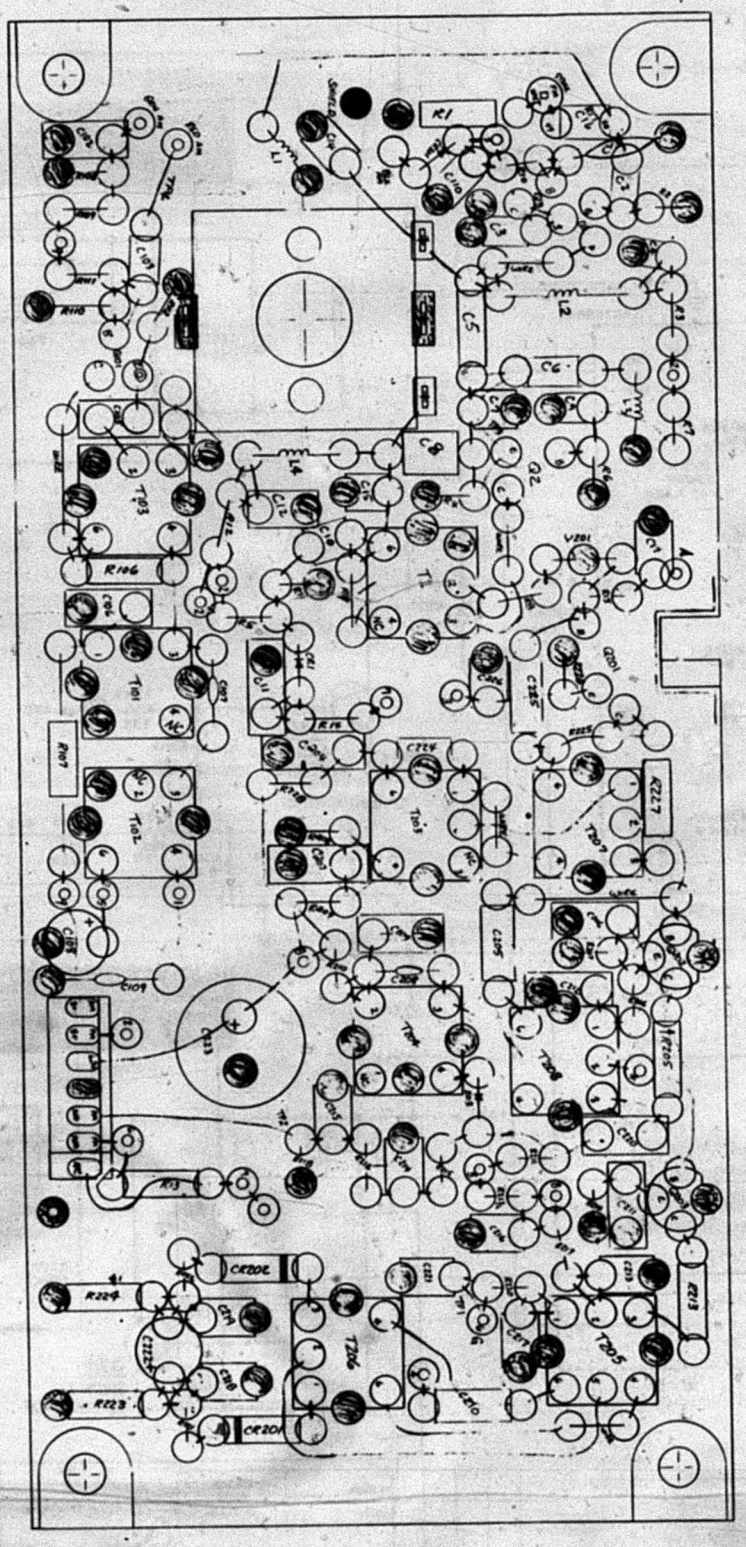




TUNING CAPACITOR FULLY CLOSED

DIAL CORD STRINGING

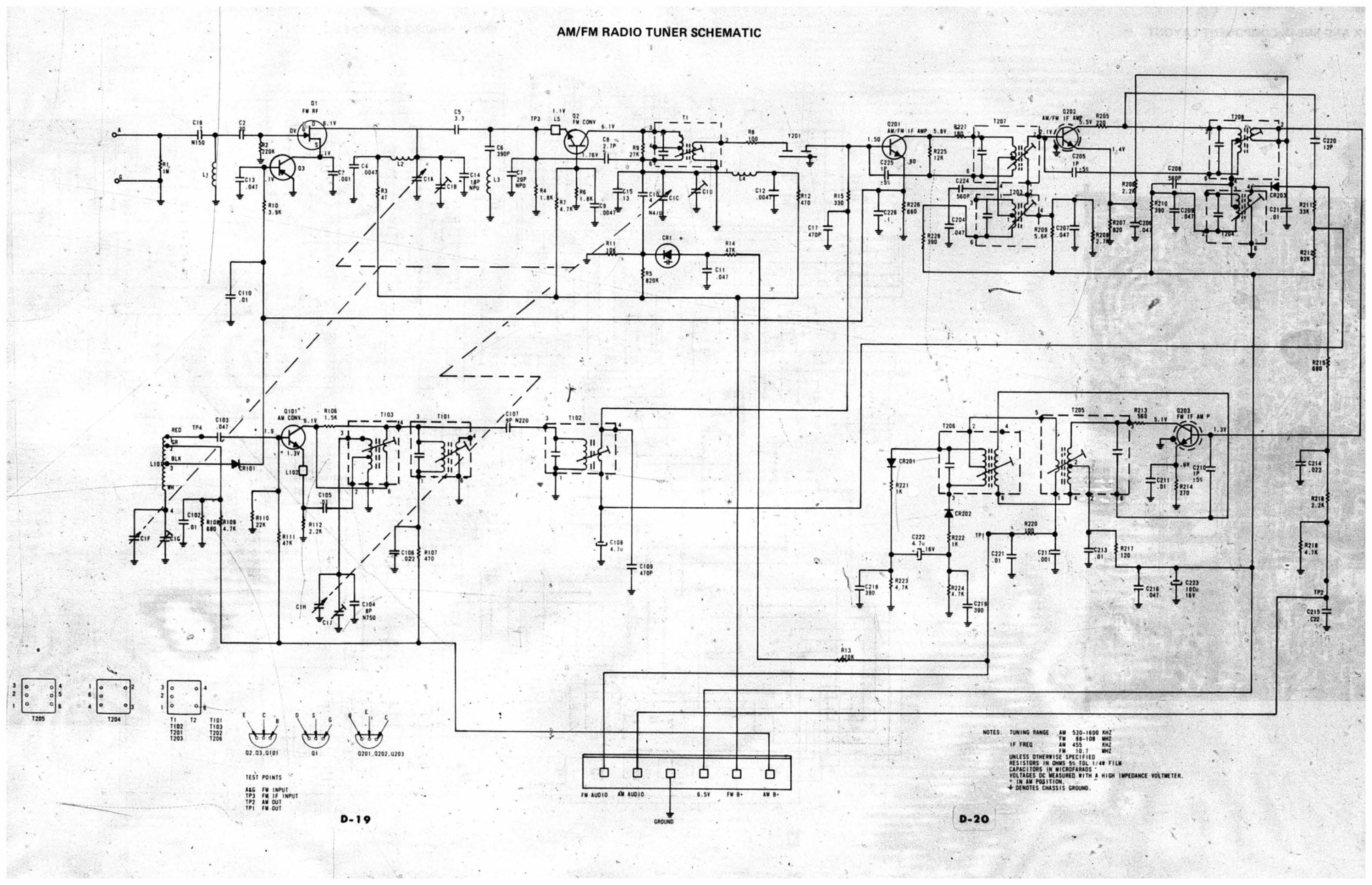
AM/FM RADIO TUNER COMPONENT LAYOUT



AM/FM RADIO TUNER LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C1	22-7675	CAPACITOR GANG 4 SECTION	
C2	22-7821-21	30 PFD CAPACITOR ±5% NPO DISC	50V
C3	22-7613-12	1000 PFD CAPACITOR ±10% DISC	50V
C4	22-7613-20	4700 PFD CAPACITOR ±10% DISC	50V
C5	22-3541	3.3 PFD CAPACITOR ±5% GIMMICK	500V
C6	22-7613-07	390 PFD CAPACITOR ±10% DISC	50V
C7	22-7821-17	20 PFD CAPACITOR ±5% NPO DISC	50V
C8	22-3405	3.7 PFD CAPACITOR ±5% GIMMICK	500V
C9	22-7613-20	4700 PFD CAPACITOR ±10% DISC	50V
C10	22-7643-02	4 PFD CAPACITOR ±.25 PF N470 DISC	50V
C11	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C12	22-7613-20	4700 PFD CAPACITOR ±10% DISC	50V
C13	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C14	22-7821-16	18 PFD CAPACITOR ±5% NPO DISC	50V
C15	22-7643-11	13 PFD CAPACITOR ±5% N470 DISC	50V
C16	22-7631-06	7 PFD CAPACITOR ±.25 PF N150 DISC	50V
C17	22-7613-08	470 PFD CAPACITOR ±10% DISC	50V
C102	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C103	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C104	22-7648-05	8 PFD CAPACITOR ±.5 PF N750 DISC	50V
C105	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C106	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C107	22-7636-07	8 PFD CAPACITOR ±.5 PF N220 DISC	50V
C108	22-7152-03	4.7 MFD CAPACITOR +100%-10% ELECT	25V
C109	22-7613-08	470 PFD CAPACITOR ±10% DISC	50V
C110	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C204	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C205	22-7273	1.0 PFD CAPACITOR ±10% GIMMICK	500V
C206	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C207	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C208	22-7613-09	560 PFD CAPACITOR ±10% DISC	50V
C209	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C210	22-7273	1.0 PFD CAPACITOR ±10% GIMMICK	500V
C211	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C212	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C213	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C214	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C215	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C216	22-7615-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C217	22-7613-12	1000 PFD CAPACITOR ±10% DISC	50V
C218	22-7613-07	390 PFD CAPACITOR ±10% DISC	50V
C219	22-7613-07	390 PFD CAPACITOR ±10% DISC	50V
C220	22-7820-12	12 PFD CAPACITOR ±10% NPO DISC	50V
C221	22-7613-24	.01 MFD CAPACITOR ±10% DISC	50V
C222	22-7152-03	4.7 MFD CAPACITOR +100%-10% ELECT	25V
C223	22-7151-08	100 MFD CAPACITOR +100%-10% ELECT	18V
C224	22-7613-09	560 PFD CAPACITOR ±10% DISC	50V
C225	22-7273	1.0 PFD CAPACITOR ±10% GIMMICK	500V
C226	22-3652	0.1 MFD CAPACITOR +80%-20% DISC	10V
R1	63-10236-44	1 MEG OHM RESISTOR 5% FILM	1/4W
R2	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R3	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R4	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R5	63-10236-42	820K OHM RESISTOR 5% FILM	1/4W
R6	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R7	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R8	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R9	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R10	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R11	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R12	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R13	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R14	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R15	63-10235-60	330 OHM RESISTOR 5% FILM	1/4W
R106	63-10235-78	1.5K OHM RESISTOR 5% FILM	1/4W
R107	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R108	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R109	63-10235-88	4.7 K OHM RESISTOR 5% FILM	1/4W
R110	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R111	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R112	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R205	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R206	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R207	63-10235-70	820 OHM RESISTOR 5% FILM	1/4W
R208	63-10235-82	2.7K OHM RESISTOR 5% FILM	1/4W
R209	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R210	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R211	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R212	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R213	63-10235-66	560 OHM RESISTOR 5% FILM	1/4W
R214	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R215	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R216	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R217	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R218	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R219			
R220	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R221	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R222	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R223	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R224	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R225	63-10235-96	12K OHM RESISTOR 5% FILM	1/4W
R226	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R227	63-10235-54	180 OHM RESISTOR 5% FILM	1/4W
R228	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
L1	20-3846	COIL RCF	
L2	20-3844	COIL RCF	
L3	20-1831	COIL TRAP	
L4	20-3845	COIL RCF	
L5	149-317	FERRITE CORE SLEEVE	
L101	A-7177	ANTENNA ASSY WAVEMAGNET	
L102	149-311	IRON CORE	
T1	95-3337	TRANSFORMER RCF TUNABLE	
T101	95-3336	TRANSFORMER RCF TUNABLE	
T102	95-3336	TRANSFORMER RCF TUNABLE	
T103	95-3341	TRANSFORMER RCF TUNABLE	
T203	95-3338	TRANSFORMER RCF TUNABLE	
T204	95-3340	TRANSFORMER RCF TUNABLE	
T205	95-3339	TRANSFORMER RCF TUNABLE	
T206	95-3338-01	TRANSFORMER RCF TUNABLE	
T207	95-3337	TRANSFORMER RCF TUNABLE	
T208	95-3337	TRANSFORMER RCF TUNABLE	
CR1	103-47	DIODE VARIABLE CAPACITANCE	
CR101	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR201	103-90	DIODE MATCHED PAIR	
CR202	103-90	DIODE MATCHED PAIR	
CR203	103-23	DIODE HIGH FREQUENCY GERMANIUM	
Q1	121-1048	TRANSISTOR FIELD EFFECT N CHANNEL FM RF	
Q101	121-1045	TRANSISTOR NPN AM CONV.	
Q2	121-1044	TRANSISTOR NPN FM CONV.	
Q201	121-950	TRANSISTOR NPN AM/FM IF AMP	
Q202	121-950	TRANSISTOR NPN IF AMP	
Q203	121-950	TRANSISTOR NPN FM IF AMP	
Q3	121-1051	TRANSISTOR NPN AGC AMP	
Y201	224-1	FILTER CERAMIC	

AM/FM RADIO TUNER SCHEMATIC



5NB1X LEGEND

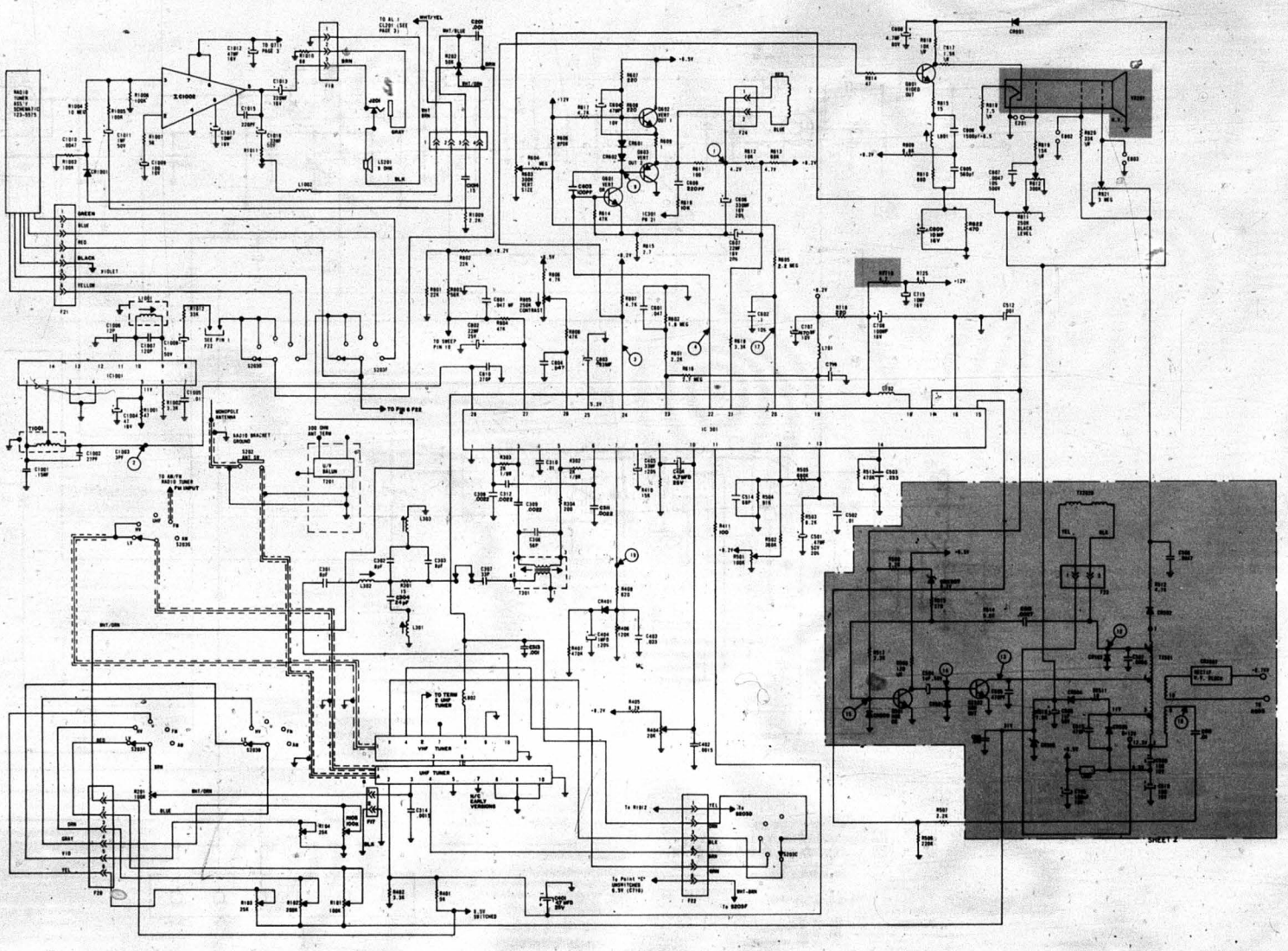
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C201			
C202			
C203	22-5251	.15MFD CAPACITOR ±20% DISC	10V
C204	22-7631-09A	10 PFD CAPACITOR ±.25 PF DISC	50V
C301	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C302	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C303	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C104	22-7631-18A	24 PFD CAPACITOR ±.25PF N150 DISC	50V
C305			
C306	22-7631-27A	56 PFD CAPACITOR ±5% N150 DISC	50V
C307	22-7619-22A	33 PFD CAPACITOR ±5% NPO DISC	50V
C308	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C309	22-7614-16A	.0022MFD CAPACITOR ±20% DISC	50V
C310	22-7615-06A	.01 MFD CAPACITOR +80%-20% DISC	50V
C311	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C312	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C313	22-7614-12A	1000 PFD CAPACITOR ±20% DISC	50V
C314	22-7614-14A	1500 PFD CAPACITOR ±20% DISC	50V
C401	22-7389-05	4.7MFD CAPACITOR ±20% ELECT	25V
C402	22-7614-14A	1500 PFD CAPACITOR ±20% DISC	50V
C403	22-7615-09A	.033 MFD CAPACITOR +80%-20% DISC	50V
C404	22-7389-02	1 MFD CAPACITOR ±20% ELECT	25V
C405	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C406	22-7152-03A	4.7 MFD CAPACITOR +100-10% ELECT	25V
C501	22-7390-02	.47 MFD CAPACITOR ±20% ELECT	50V
C502	22-7615-06A	.01 MFD CAPACITOR +80%-20% DISC	50V
C503	22-7615-09A	.033MFD CAPACITOR +80%-20% DISC	50V
C504	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C505	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C506	22-7440	.0047 MFD CAPACITOR ±10% DISC	500V
C507	22-7776-09	.0056 MFD CAPACITOR ±5% POLYESTER	200V
C508	22-7153	1 MFD CAPACITOR +100%-10% ELECT	50V
C509	22-7151-08	100 MFD CAPACITOR +100%-10% ELECT	16V
C510	22-7151-08	100 MFD CAPACITOR +100%-10% ELECT	16V
C511	22-7614-24B	.01 MFD CAPACITOR ±20% DISC	50V
C512	22-7614-12A	1000 PFD CAPACITOR ±20% DISC	50V
C513	22-7777-05	.0027 MFD CAPACITOR ±10% POLYESTER	200V
C514	22-7631-29A	68 PFD CAPACITOR ±5% DISC	50V
C515	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C516	22-7614-12A	1000PFD CAPACITOR ±20% DISC	50V
C601	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C602	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C603	22-7613A	100PFD CAPACITOR ±10% DISC	50V
C604	22-7150-03A	47 MFD CAPACITOR +100%-10% ELECT	10V
C605			
C606	22-7716-11	330 MFD CAPACITOR ±20% ELECT	10V
C607	22-7579	22 MFD CAPACITOR ±20% ELECT	16V
C608	22-7613-04A	220 PFD CAPACITOR ±10% DISC	50V
C701	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C702	22-7151-13A	2200 MFD CAPACITOR +100%-10% ELECT	16V
C703	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C704	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C705	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C706	22-7151-05A	22 MFD CAPACITOR +100%-10% ELECT	16V
C707	22-7150-11A	470 MFD CAPACITOR +100%-10% ELECT	10V
C708	22-7151-08A	100 MFD CAPACITOR +100%-10% ELECT	16V
C709	22-7614-12A	1000 PFD CAPACITOR ±20% DISC	50V
C710	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C711	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C712	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C713	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C714	22-7775-24	.1 MFD CAPACITOR 20% POLYESTER	100V
C715	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C716	22-7613-12A	1000 PFD CAPACITOR ±10% DISC	50V
C801	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C802	22-7389-03	2.2 MFD CAPACITOR ±20% ELECT	25V
C803	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C804	22-7615-10A	.047 MFD CAPACITOR ±20% DISC	50V
C805	22-7613-09A	560 PFD CAPACITOR ±10% DISC	50V
C806	22-7459-01	1500 PFD CAPACITOR ±10% TUBULAR	100V
C807	22-7440	.0047 MFD CAPACITOR ±10% DISC	500V
C808	22-7156-03A	4.7 MFD CAPACITOR +100%-10% ELECT	80V
C909	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C810	22-7613-05A	270 PFD CAPACITOR ±10% DISC	[illegible]

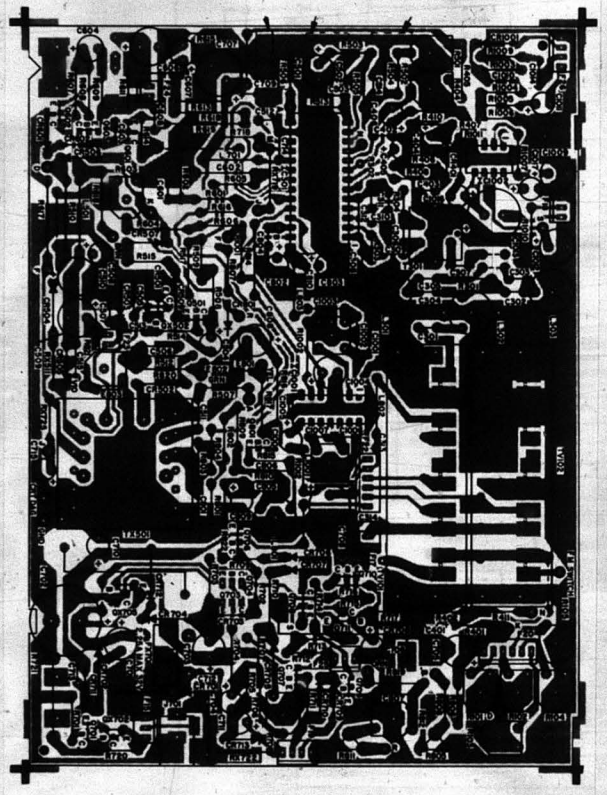
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C1001	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1002	22-7632-19A	27 PFD CAPACITOR ±10% N150 DISC	50V
C1003	22-7631-02	3 PFD CAPACITOR ±.25 PF N150 DISC	50V
C1004	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1005	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C1006	22-7639-10A	12 PFD CAPACITOR ±5% N330 DISC	50V
C1007	22-7625-36A	120 PFD CAPACITOR ±5% N30 DISC	50V
C1008	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C1009	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C1010	22-7614-20A	4700 PFD CAPACITOR ±20% DISC	50V
C1011	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C1012	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1013	22-7151-09A	220 MFD CAPACITOR +100%-10% ELECT	16V
C1014	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1015	22-7614-04	220 PFD CAPACITOR ±20% DISC	50V
C1016	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C1017	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
R101	63-10651-12	100K OHM CONTROL HI-SCALE ADJ VHF	
R102	63-10651-20	200K OHM CONTROL HI-SCALE ADJ. VHF	
R103	63-10651-11	25K OHM CONTROL HI-SCALE ADJ. UHF	
R104	63-10651-11	25K OHM CONTROL HI-SCALE ADJ. VHF	
R105	63-10651-12	100K OHM CONTROL LO-SCALE ADJ. VHF	
R201	63-10866	100K OHM CONTROL TV TUNING	
R202	63-10873	50K OHM CONTROL VOLUME	
R203	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R204	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R301	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R302	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R303	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R304	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R401	63-10235-83	3K OHM RESISTOR 5% FILM	1/4W
R402	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R403			
R404	63-10651-16	20K OHM CONTROL AGC	
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R407	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R408	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W
R409			
R410	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R411	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R501	63-10651-12	100K OHM CONTROL HORIZ. HOLD	
R502	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R504	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R505	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R506	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R507	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R508	63-10243-50	120 OHM RESISTOR 5% FILM	1/2W
R509	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R510	63-10235-93	7.5K OHM RESISTOR 5% FILM	1/4W
R511	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R512	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R513	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R514	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R515	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R516			
R517	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R601	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-50	1.8 MEG OHM RESISTOR 5% FILM	1/4W
R603	63-10651-17	300K OHM CONTROL VERT SIZE	
R604	63-10236-44	1 MEG OHM RESISTOR 5% FILM	1/4W
R605	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R606	63-10236-30	270K OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R609	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R610			
R611	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R612	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R613	63-10236-16	68K OHM RESISTOR 5% FILM	1/4W
R614	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R615	63-10235-10	2.7 OHM RESISTOR 5% FILM	1/4W
R616	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R617	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R618	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R619	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R701	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R702	63-10235-82	390 OHM RESISTOR 5% FILM	1/4W
R703	63-10235-66	560 OHM RESISTOR 5% FILM	1/4W
R704	63-10243-48	100 OHM RESISTOR 5% FILM	1/2W
R705	63-10235-87	4.3K OHM RESISTOR 5% FILM	1/4W
R706	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R707	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R708	63-10651-18	10K OHM CONTROL VOLT. ADJ	
R709	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R710	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R711	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R712	63-10236-02	18K OHM RESISTOR 5% FILM	1/4W
R713	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R714	63-10236-02	18K OHM RESISTOR 5% FILM	1/4W
R715	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R716	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R717	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R718	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
RX719	63-10565-16	4.7 OHM RESISTOR 5% FILM	1/2W
R720	63-10243-70	820 OHM RESISTOR 5% FILM	1/2W
R721	63-10422-56	22 OHM RESISTOR 10% WIREWOUND	2W
RX722	63-10832-56	270 OHM RESISTOR 5% FILM	1W
RX725	63-10565-16	4.7 OHM RESISTOR 5% FILM	1/2W
R801	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R805	63-10637-07	250K OHM CONTROL CONTRAST	
R806	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R807	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R809	63-10235-92	6.8K OHM RESISTOR 5% FILM	1/4W
R810	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R811	63-10637-07	250K OHM CONTROL BLACK LEVEL	
R812	63-10651-17	300K OHM CONTROL BLACKLEVEL RANGE	
R813			
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R816	63-10243-96	10K OHM RESISTOR 5% FILM	1/2W
R817	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R818	63-10743-21	7.5 OHM RESISTOR 5% FILM	1/2W
R819	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R820	63-7848	33K OHM RESISTOR 10% CARBON	1/2W
R821	63-10651-19	3 MEG OHM CONTROL FOCUS	
R822	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1001	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1003	63-10236-20	100K OHM RESISTOR 5% FILM	[illegible]
R1004	63-9922-68	10 MEG OHM RESISTOR 5% FILM	1/4W
R1005	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1006	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1007	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R1008			
R1009	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R1010	63-10235-44	68 OHM RESISTOR 5% FILM	1/4W
R1011	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R1012	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
L201	20-3984	COIL RCF PARASITIC SUPPRESSOR	
L301	20-3619-03	COIL RCF TUNABLE	
L302	20-3117	COIL RCF TUNABLE	
L303	20-3619-03	COIL RCF TUNABLE	
L501	149-379	FERRITE SLEEVE	
L701	20-3907-03	COIL RCF 1.8MH	
L702	20-3907-03	COIL RCF 1.8MH	
L703	20-3984	COIL RCF PARASITIC SUPPRESSOR	
L704	149-417	FERRITE SLEEVE	
L705	149-417	FERRITE SLEEVE	
L801	20-3405	COIL RCF TUNABLE 4.5 MHZ	
L802	20-3907-03	COIL RCF 1.8 MH	
L803	20-3907-03	COIL RCF 1.8 MH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD.	
L1002	20-3907-03	COIL RCF 1.3 MH	
E801	52-958-04	SPARK GAP	
E802	52-958-04	SPARK GAP	
E803	52-958-04	SPARK GAP	
LS201	49-1314	SPEAKER 8 OHM IMPED.	
E201	52-958-04	SPARK GAP	
T201	95-3508	TRANSFORMER B+ [illegible]	
TX202A	95-3401	TRANSFORMER DEFLECTION YOKE VERT	
TX202B		TRANSFORMER DEFLECTION YOKE HORIZ	
T301	95-2909-08	TRANSFORMER RCF TUNABLE	
TX501	95-3508	SWEEP TRANSFORMER	
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ INPUT	
CR401	103-142-01	DIODE LOW VOLTAGE GENERAL	

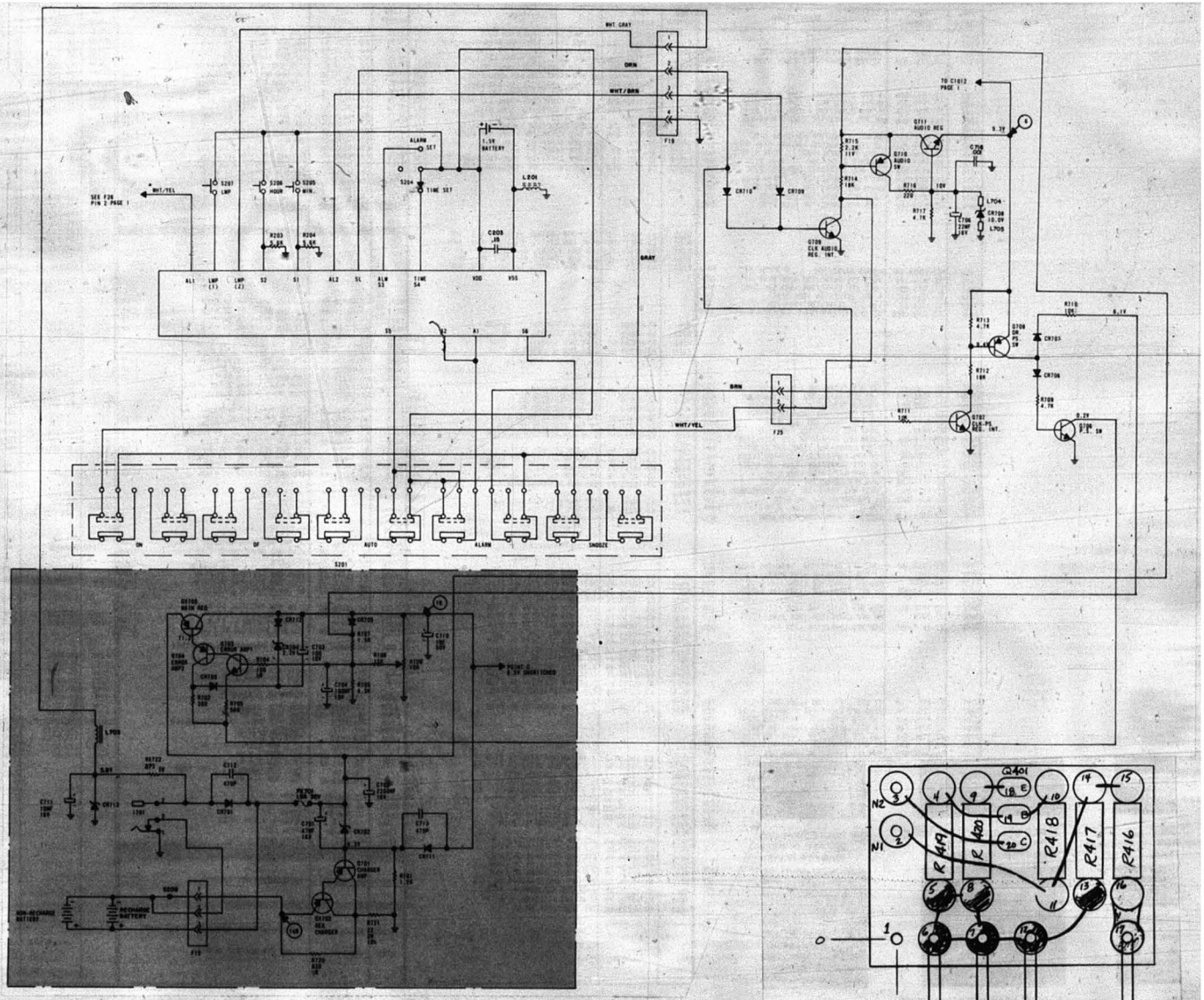
ITEM NUMBER	PART NUMBER	DESCRIPTION
CR501	103-295	DIODE LOW VOLTAGE GENERAL
CR502	103-261-04	DIODE LOW VOLTAGE GENERAL
CR503	103-263	DIODE LOW VOLTAGE GENERAL
CR504	103-295-02	DIODE LOW VOLTAGE GENERAL
CR505	103-263	DIODE LOW VOLTAGE GENERAL
CR506	103-334	DIODE ZENER 30V 250 MW
CRX507	103-279-16	DIODE ZENER 8.2V 0.5W
CR509	103-142-01	DIODE LOW VOLTAGE GENERAL
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL
CR701	103-254	DIODE LOW VOLTAGE GENERAL
CR702	103-279-20	DIODE ZENER 11V 0.5W
CR703	103-142-01	DIODE LOW VOLTAGE GENERAL
CR704	103-279	DIODE ZENER
CR705	103-142-01	DIODE LOW VOLTAGE GENERAL
CR706	103-142-01	DIODE LOW VOLTAGE GENERAL
CR707	103-142-01	DIODE LOW VOLTAGE GENERAL
CR708	103-279-19	DIODE ZENER 10V 0.5W
CR709	103-142-01	DIODE LOW VOLTAGE GENERAL
CR710	103-142-01	DIODE LOW VOLTAGE GENERAL
CR711	103-142-01	DIODE LOW VOLTAGE GENERAL
CR712	103-142-01	DIODE LOW VOLTAGE GENERAL
CR713	103-279-07	DIODE ZENER 3.9 V 0.5W
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
CR1001	103-142-01	DIODE LOW VOLTAGE GENERAL
Q501	121-819	TRANSISTOR NPN HORIZ DRIVER
Q502	121-1028-01	TRANSISTOR NPN HORIZ OUTPUT
Q601	121-975	TRANSISTOR NPN VERT DRIVER
Q602	121-819	TRANSISTOR NPN VERT OUTPUT 1
Q603	121-973	TRANSISTOR PNP VERT OUTPUT 2
Q701	121-1021	TRANSISTOR PNP CHARGER DARLINGTON AMP
QX702	121-994	TRANSISTOR PNP REGULATOR CHARGER
Q703	121-975	TRANSISTOR NPN ERROR AMPL 1
Q704	121-1021	TRANSISTOR PNP ERROR AMPL 2
QX705	121-994	TRANSISTOR PNP MAIN REGULATOR
Q706	121-975	TRANSISTOR NPN PS ELECTRONIC SWITCH
Q707	121-975	TRANSISTOR NPN CLOCK-PS REG INTERFACE
Q708	121-699	TRANSISTOR PNP PS ELECTRONIC SWITCH DRIVER
Q709	121-975	TRANSISTOR NPN CLOCK-AUDIO REG INTERFACE
Q710	121-699	TRANSISTOR PNP AUDIO ELECTRONIC SWITCH
Q711	121-992-01	TRANSISTOR NPN AUDIO REGULATOR
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
IC301	221-201-03 OR 221-201	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMP AND PROCESSOR
IC1001	221-48	INTEGRATED CIRCUIT SOUND
IC1002	221-202	INTEGRATED CKT GAIN BLOCK AUDIO OUTPUT
FX701	136-120-01	FUSE1.5AMP NORMAL LAG 32V
J201	78-2239	EARPHONE JACK
J701	78-2971	BATTERY JACK
S201	85-1581	SWITCH ON-OFF SNOOZE
S202	85-1603	SWITCH ANTENNA SELECTOR
S203	85-1580	SWITCH TV FUNCTION
S204	85-1582	SWITCH CLOCK FUNCTION
S205	85-1583	SWITCH CLOCK SETTING
S206	85-1583	SWITCH CLOCK SETTING
S207	85-1597	SWITCH CLOCK LIGHT
S208	85-1589	SWITCH BATTERY CHARGE
VX201	100-709	CRT
TV101	175-2238	TUNER VARACTOR VHF MITSUMI
TU102	175-2239	TUNER VARACTOR UHF MITSUMI
CL201	172-82	CLOCK LCD DIGITAL
RADIC	A-8784	TUNER AM-FM

5NB1X CHASSIS SCHEMATIC

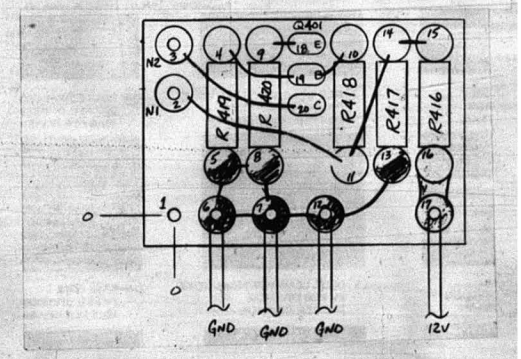




5NB1X AND 5NB4X COMPONENT LAYOUT

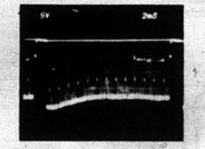


5NB1X POWER SUPPLY/CLOCK MODULE SCHEMATIC

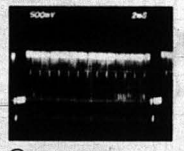


AGC CONVERTER COMPONENT LAYOUT

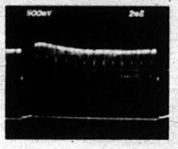
5NB1X WAVEFORMS



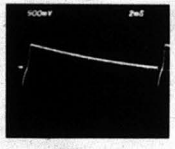
① COLLECTOR Q801
5V PER DIVISION
2mS PER DIVISION



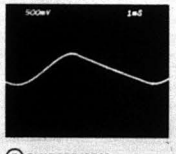
② PIN #28 IC301
500mV PER DIVISION
2mS PER DIVISION



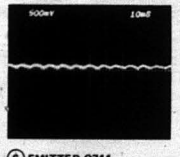
③ PIN #24 IC 301
500mV PER DIVISION
2mS PER DIVISION



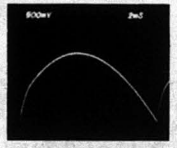
④ PIN #22 IC301
500mV PER DIVISION
2mS PER DIVISION



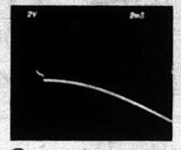
⑤ EMITTER Q710
500mV PER DIVISION
1mS PER DIVISION



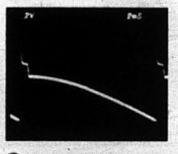
⑥ EMITTER Q711
500mV PER DIVISION
10mS PER DIVISION



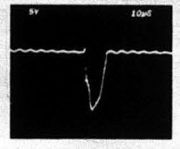
⑦ RED LEAD VERTICAL YOKE
500mV PER DIVISION
2mS PER DIVISION



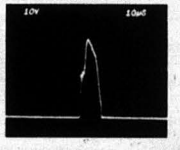
⑧ BLUE LEAD VERTICAL YOKE
2V PER DIVISION
2mS PER DIVISION



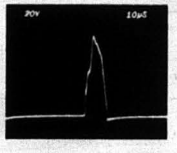
⑨ COLLECTOR Q601
2V PER DIVISION
2mS PER DIVISION



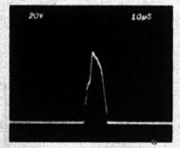
⑩ PIN #10 HORIZONTAL SWEEP TRANS.
5V PER DIVISION
10μS PER DIVISION



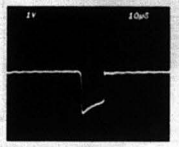
⑪ PIN #3 HORIZONTAL SWEEP TRANS.
10V PER DIVISION
10μS PER DIVISION



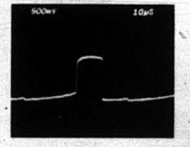
⑫ YELLOW LEAD HORIZONTAL YOKE
20V PER DIVISION
10μS PER DIVISION



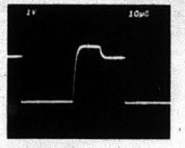
⑬ COLLECTOR Q502
20V PER DIVISION
10μS PER DIVISION



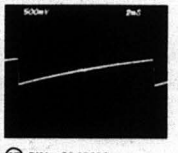
⑭ BASE Q502
1V PER DIVISION
10μS PER DIVISION



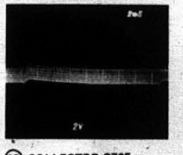
⑮ BASE Q501
500mV PER DIVISION
10μS PER DIVISION



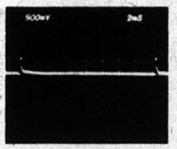
⑯ PIN #17 IC103
1V PER DIVISION
10μS PER DIVISION



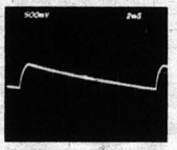
⑰ PIN #20 IC103
500mV PER DIVISION
2mS PER DIVISION



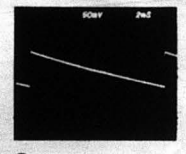
⑱ COLLECTOR Q705
2V PER DIVISION
2mS PER DIVISION



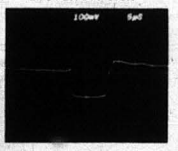
⑲ PIN #7 IC301
500mV PER DIVISION
2mS PER DIVISION



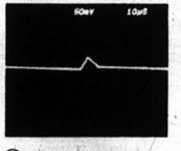
⑳ PIN #21 IC301
500mV PER DIVISION
2mS PER DIVISION



㉑ PIN #23 IC301
50mV PER DIVISION
2mS PER DIVISION

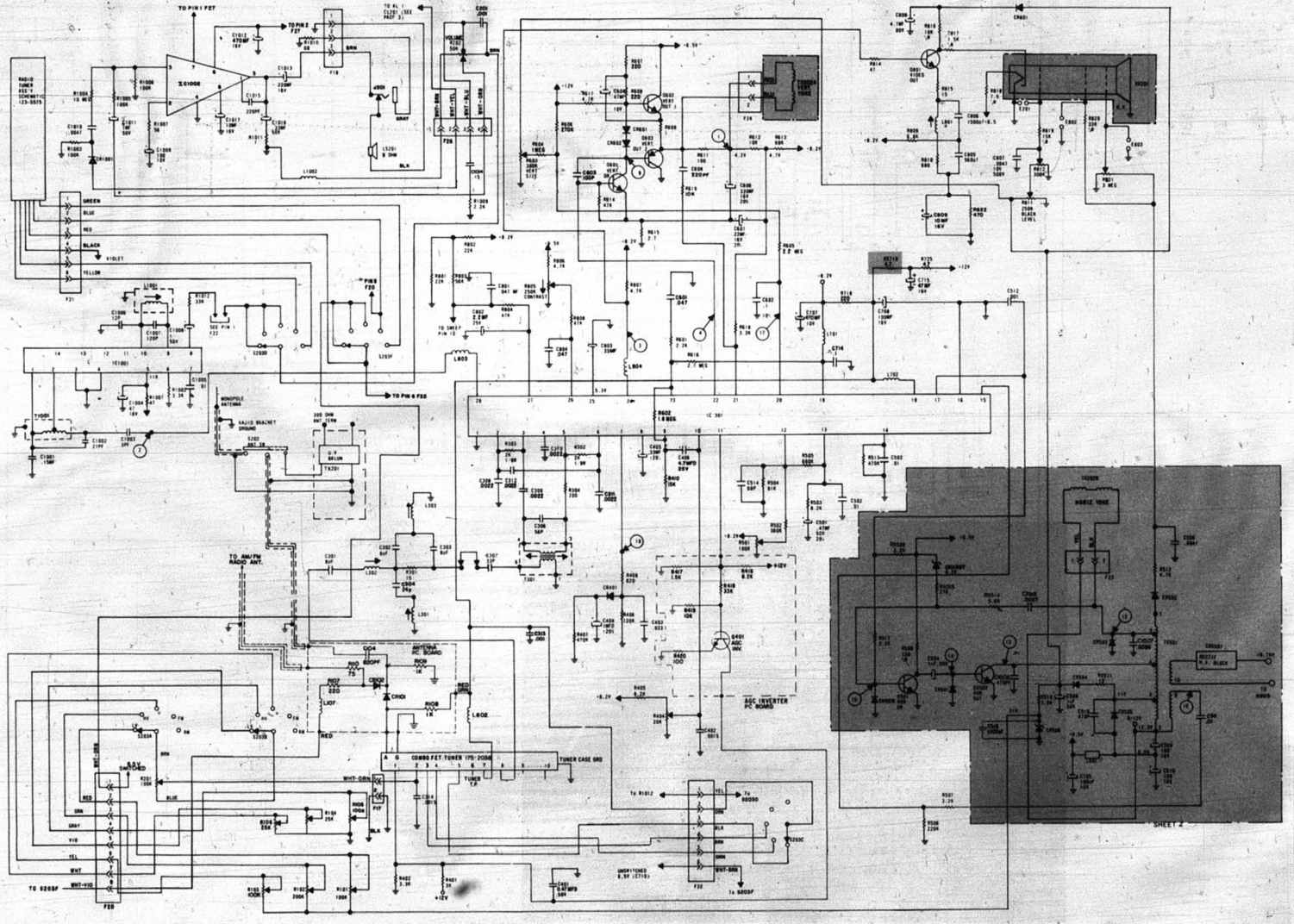


㉒ PIN #15 IC301
100mV PER DIVISION
5μS PER DIVISION



㉓ PIN #14 IC301
50mV PER DIVISION
10μS PER DIVISION

5NB2X CHASSIS SCHEMATIC



5NB2X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION
C101		
C102		
C103		
C104	22-7503-01	820 PFD CAPACITOR • 80%-20% LEADLESS DISC 400V
C201	22-7614-12	1000 PFD CAPACITOR ± 20% DISC 50V
C202		
C203	22-5251	.15 MFD CAPACITOR • 20% DISC 10V
C204	22-7631-09A	10 PFD CAPACITOR ± .25 PFD DISC 50V
C301	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC 50V
C302	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC 50V
C303	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC 50V
C304	22-7631-18A	24 PFD CAPACITOR ± 5% DISC 50V
C305		
C306	22-7631-27A	56 PFD CAPACITOR ± 5% DISC 50V
C307	22-7619-22A	33 PFD CAPACITOR ± 5% DISC 50V
C308	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC 50V
C309	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC 50V
C310	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC 50V
C311	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC 50V
C312	22-7614-16	2200 PFD CAPACITOR ± 20% DISC 50V
C313	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC 50V
C314	22-7614-14A	1500 PFD CAPACITOR ± 20% DISC 50V
C401	22-7390-02	.47 MFD CAPACITOR ± 20% ELECT 50V
C402	22-7614-14A	1500 PFD CAPACITOR ± 20% DISC 50V
C403	22-7615-08A	33000 PFD CAPACITOR • 80%-20% DISC 50V
C404	22-7389-02	1 MFD CAPACITOR ± 20% ELECT 25V
C405	22-7390-05	.33 MFD CAPACITOR • 50%-10% ELECT 50V
C406	22-7389-05	4.7 MFD CAPACITOR ± 20% ELECT 25V
C501	22-7390-02	.47 MFD CAPACITOR ± 20% ELECT 50V
C502	22-7615-08A	10000 PFD CAPACITOR • 80%-20% DISC 50V
C503	22-7615-08A	10000 PFD CAPACITOR • 80%-20% DISC 50V
C504	22-7153A	1 MFD CAPACITOR • 100%-10% ELECT 50V
C505	22-7211-03	470 PFD CAPACITOR ± 20% DISC 500V
C506	22-7440	4700 PFD CAPACITOR ± 10% DISC 500V
C507	22-7214-09	.0068 MFD CAPACITOR ± 5% POLYESTER 200V
C508	22-7153A	1 MFD CAPACITOR • 100%-10% ELECT 50V
C509	22-7151-08A	100 MFD CAPACITOR • 100%-10% ELECT 16V
C510	22-7151-08A	100 MFD CAPACITOR • 100%-10% ELECT 16V
C511	22-7614-24B	10000 PFD CAPACITOR ± 20% DISC 50V
C512	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC 50V
C513	22-7772-05	.0027 MFD CAPACITOR ± 10% POLYESTER 200V
C514	22-7631-29A	68 PFD CAPACITOR ± 5% DISC 50V
C515	22-3217	470 PFD CAPACITOR ± 20% DISC 500V
C516	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC 50V
C601	22-7615-10A	47000 PFD CAPACITOR • 80%-20% DISC 50V
C602	22-7547	.1 MFD CAPACITOR ± 10% POLYESTER 50V
C603	22-7613B	100 PFD CAPACITOR ± 10% DISC 50V
C604	22-7156-07A	47 MFD CAPACITOR • 100%-10% ELECT 10V
C605		
C606	22-7716-11	330 MFD CAPACITOR ± 20% ELECT 10V
C607	22-7519	22 MFD CAPACITOR ± 20% ELECT 16V
C608	22-7613-04A	220 PFD CAPACITOR ± 10% DISC 50V
C701	22-7151-07A	47 MFD CAPACITOR • 100%-10% ELECT 16V
C702	22-7151-13A	220 MFD CAPACITOR • 100%-10% ELECT 10V
C703	22-7150-08A	100 MFD CAPACITOR • 100%-10% ELECT 10V
C704	22-7151-04A	10 MFD CAPACITOR • 100%-10% ELECT 16V
C705	22-7150-08A	100 MFD CAPACITOR • 100%-10% ELECT 10V
C706	22-7151-05A	22 MFD CAPACITOR • 100%-10% ELECT 16V
C707	22-7150-11A	470 MFD CAPACITOR • 100%-10% ELECT 10V
C708	22-7151-08A	100 MFD CAPACITOR • 100%-10% ELECT 16V
C709		
C710	22-7153A	1 MFD CAPACITOR • 100%-10% ELECT 50V
C711		

ITEM NUMBER	PART NUMBER	DESCRIPTION
C712	22-3217	470 PFD CAPACITOR ± 20% DISC 500V
C713	22-3217	470 PFD CAPACITOR ± 20% DISC 500V
C714	22-7775-24	.1 MFD CAPACITOR ± 20% POLYESTER 100V
C715	22-7151-07A	47 MFD CAPACITOR • 100%-10% ELECT 16V
C716	22-7613-12A	.001 MFD CAPACITOR ±10 % 50V
R101	63-10051-12	100K OHM CONTROL HI-SCALE ADJ VHF
R102	63-10651-16	20K OHM CONTROL HI-SCALE ADJ VHF
R103	63-10651-12	100K OHM CONTROL HI-SCALE ADJ UHF
R104	63-10651-18	10K OHM CONTROL HI-SCALE ADJ VHF
R105	63-10651-12	100K OHM CONTROL LO-SCALE ADJ VHF
R106	63-10651-18	10K OHM CONTROL ∞
R107	63-10235-56	220 OHM RESISTOR 5% FILM 1/4W
R108	63-10235-72	1K OHM RESISTOR 5% FILM 1/4W
R110	63-10235-45	75 OHM RESISTOR 5% FILM 1/4W
R201	63-10666	100K OHM CONTROL TV TUNING
R202	63-10873	50K OHM CONTROL VOLUME
R203	63-10235-90	5.6K OHM RESISTOR 5% FILM 1/4W
R204	63-10235-90	5.6K OHM RESISTOR 5% FILM 1/4W
R205	63-1830	12K OHM RESISTOR 5% CARBON 1/2W
R206	63-10243-38	39 OHM RESISTOR 5% FILM 1/2W
R207	63-10243-40	47 OHM RESISTOR 5% FILM 1/2W
R301	63-10235-28	15 OHM RESISTOR 5% FILM 1/4W
R302	63-10875	2K OHM RESISTOR 5% FILM 1/8W
R303	63-10875	2K OHM RESISTOR 5% FILM 1/8W
R304	63-10875-01	200 OHM RESISTOR 5% FILM 1/8W
R401	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R402	63-10235-86	3.9K OHM RESISTOR 5% FILM 1/4W
R403		
R404	63-10651-16	20K OHM CONTROL AGC
R405	63-10235-84	6.2K OHM RESISTOR 5% FILM 1/4W
R406	63-10236-22	120K OHM RESISTOR 5% FILM 1/4W
R407	63-10236-16	470K OHM RESISTOR 5% FILM 1/4W
R408	63-10235-67	820 OHM RESISTOR 5% FILM 1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION
R409		
R410	63-10236	15K OHM RESISTOR 5% FILM 1/4W
R415	63-10236-04	82K OHM RESISTOR 5% FILM 1/4W
R417	63-10236-78	115K OHM RESISTOR 5% FILM 1/4W
R418	63-10236-80	133K OHM RESISTOR 5% FILM 1/4W
R501	63-10651-12	100K OHM CONTROL HORIZONTAL HOLD
R502	63-10236-33	360K OHM RESISTOR 5% FILM 1/4W
R503	63-10235-94	8.2K OHM RESISTOR 5% FILM 1/4W
R504	63-10236-19	91K OHM RESISTOR 5% FILM 1/4W
R505	63-10236-40	680K OHM RESISTOR 5% FILM 1/4W
R506	63-10236-28	220K OHM RESISTOR 5% FILM 1/4W
R507	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R508	63-10243-50	120 OHM RESISTOR 5% FILM 1/2W
R509	63-10235-86	3.9K OHM RESISTOR 5% FILM 1/4W
R510	63-10235-93	7.5K OHM RESISTOR 5% FILM 1/4W
R511	63-10559-24	10 OHM RESISTOR 5% FILM 1/4W
R512	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R513	63-10236-36	470K OHM RESISTOR 5% FILM 1/4W
R515	63-10235-86	3.9K OHM RESISTOR 5% FILM 1/4W
R516	63-10235-58	330 OHM RESISTOR 5% FILM 1/4W
R517	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R601	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R602	63-10236-50	1.1 MEG OHM RESISTOR 5% FILM 1/4W
R603	63-10651-17	300K OHM CONTROL VERTICAL SIZE
R604	63-10236-44	1 MEG OHM RESISTOR 5% FILM 1/4W
R605	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM 1/4W
R606	63-10236-30	270K OHM RESISTOR 5% FILM 1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM 1/4W
R608	63-10235-56	220 OHM RESISTOR 5% FILM 1/4W
R609	63-10235	1 OHM RESISTOR 5% FILM 1/4W
R610		
R611	63-10235-48	100 OHM RESISTOR 5% FILM 1/4W
R612	63-10235-86	10K OHM RESISTOR 5% FILM 1/4W
R613	63-10236-16	68K OHM RESISTOR 5% FILM 1/4W
R614	63-10236-12	47K OHM RESISTOR 5% FILM 1/4W
R615	63-10235-10	2.7 OHM RESISTOR 5% FILM 1/4W
R616	63-10236-54	2.7MEG OHM RESISTOR 5% FILM 1/4W
R617	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R618	63-10235-84	3.3K OHM RESISTOR 5% FILM 1/4W
R619	63-10235-96	10K OHM RESISTOR 5% FILM 1/4W
R701	63-10235-74	1.2K OHM RESISTOR 5% FILM 1/4W
R702	63-10235-62	390 OHM RESISTOR 5% FILM 1/4W
R703	63-10235-66	560 OHM RESISTOR 5% FILM 1/4W
R704	63-10243-48	100 OHM RESISTOR 5% FILM 1/2W
R705	63-10275-87	4.3K OHM RESISTOR 5% FILM 1/4W
R706	63-10235-98	12K OHM RESISTOR 5% FILM 1/4W
R707	63-10235-76	1.5K OHM RESISTOR 5% FILM 1/4W
R708	63-10651-12	100K OHM CONTROL AGC
R709	63-10235-88	4.7K OHM RESISTOR 5% FILM 1/4W
R710	63-10235-96	10K OHM RESISTOR 5% FILM 1/4W
R711	63-10235-96	10K OHM RESISTOR 5% FILM 1/4W
R712	63-10236-02	18K OHM RESISTOR 5% FILM 1/4W
R713	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R714	63-10236-02	18K OHM RESISTOR 5% FILM 1/4W
R715	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R716	63-10235-56	220 OHM RESISTOR 5% FILM 1/4W
R717	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R718	63-10235-56	220 OHM RESISTOR 5% FILM 1/4W
R719	63-10559-15	4.7 OHM RESISTOR 5% FILM 1/4W
R720	63-10243-70	820 OHM RESISTOR 5% FILM 1/2W
R721	63-10422-56	22 OHM RESISTOR 10% WIREBOUND 2W
R722	63-10235-90	5.6K OHM RESISTOR 5% FILM 1/4W
R723	63-10235-08	2.2 OHM RESISTOR 5% FILM 1/4W
R724		
R725	63-10559-15	4.7 OHM RESISTOR 5% FILM 1/4W
R801	63-10236-94	22K OHM RESISTOR 5% FILM 1/4W
R802	63-10236-94	22K OHM RESISTOR 5% FILM 1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM 1/4W
R804	63-10236-12	47K OHM RESISTOR 5% FILM 1/4W
R805	63-10637-07	250K OHM CONTROL CONTRAST

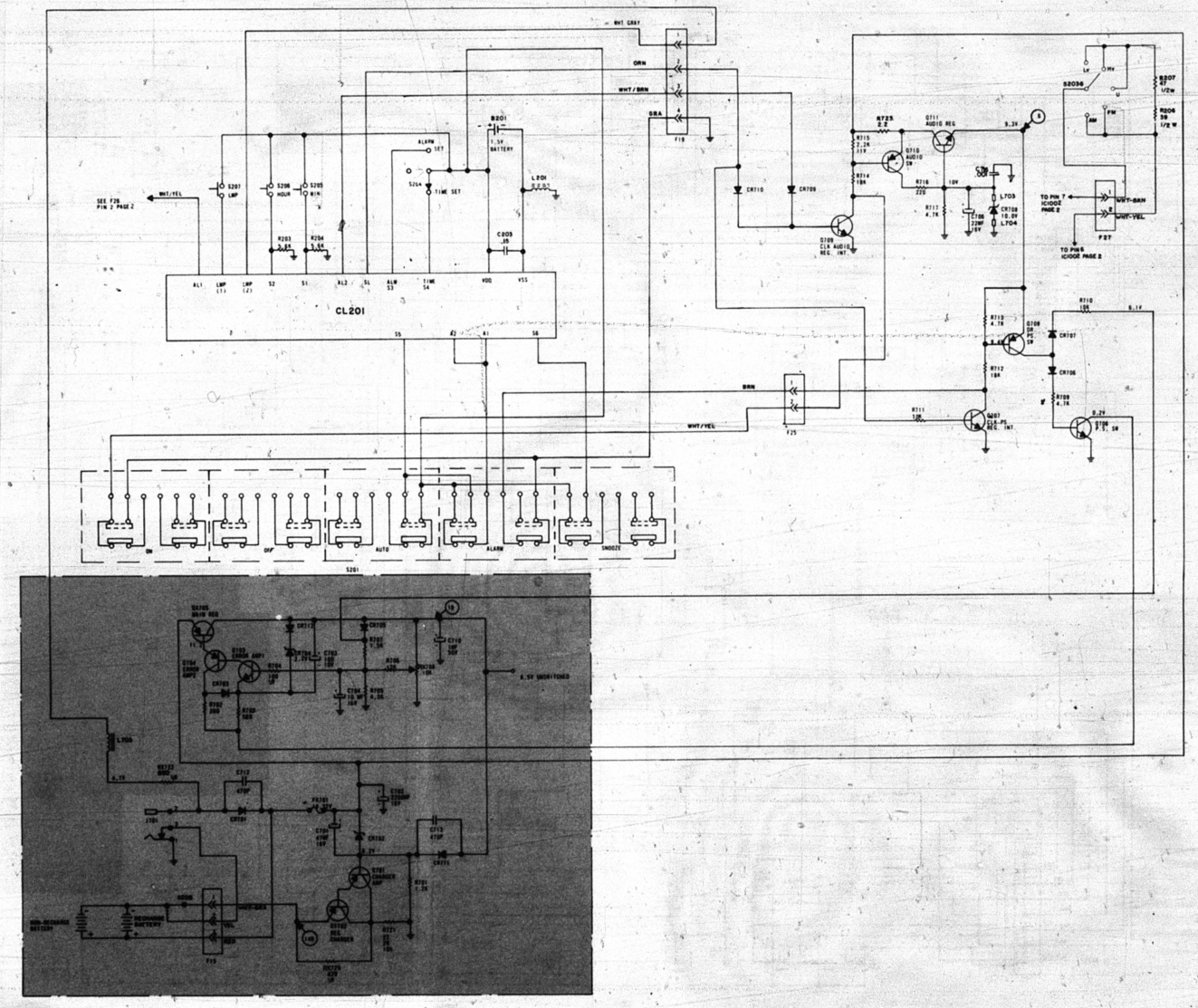
ITEM NUMBER	PART NUMBER	DESCRIPTION
R806	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R807	63-10235-68	4.7K OHM RESISTOR 5% FILM 1/4W
R808	63-10236-12	47K OHM RESISTOR 5% FILM 1/4W
R809	63-10235-82	6.8K OHM RESISTOR 5% FILM 1/4W
R810	63-10235-68	680 OHM RESISTOR 5% FILM 1/4W
R811	63-10637-07	250K OHM CONTROL BLACK LEVEL
R812	63-10651-17	300K OHM CONTROL BLACK LEVEL RANGE
R813		
R814	63-10235-40	47 OHM RESISTOR 5% FILM 1/4W
R815	63-10235-28	15 OHM RESISTOR 5% FILM 1/4W
R816	63-10243-96	10K OHM RESISTOR 5% FILM 1/2W
R817	63-1702	1.5K OHM RESISTOR 10% CARBON 1/2W
R818	63-10243-21	7.5 OHM RESISTOR 5% FILM 1/2W
R819	63-1834	15K OHM RESISTOR 10% CARBON 1/2W
R820	63-1848	33K OHM RESISTOR 10% CARBON 1/2W
R821	63-10651-19	3 MEG OHM CONTROL FOCUS
R822	63-10235-64	470 OHM RESISTOR 5% FILM 1/4W
R1001	63-10235-40	47 OHM RESISTOR 5% FILM 1/4W
R1002	63-10235-64	3.3K OHM RESISTOR 5% FILM 1/4W
R1003	63-10236-20	100K OHM RESISTOR 5% FILM 1/4W
R1004	63-10236-68	10 MEG OHM RESISTOR 5% FILM 1/4W
R1005	63-10236-20	100K OHM RESISTOR 5% FILM 1/4W
R1006	63-10236-20	100K OHM RESISTOR 5% FILM 1/4W
R1007	63-10235-42	56 OHM RESISTOR 5% FILM 1/4W
R1008		
R1009	63-10235-80	2.2K OHM RESISTOR 5% FILM 1/4W
R1010	63-10235-44	68 OHM RESISTOR 5% FILM 1/4W
R1011	63-10235	1 OHM RESISTOR 5% FILM 1/4W
R1012	63-10236-08	33K OHM RESISTOR 5% FILM 1/4W
L107	20-3907-03	COIL RCF 1.8 uH
L201	20-3984	PARASITIC SUPPRESSOR
L202	20-4032	COIL RCF
L301	20-3619-03	COIL RCF TUNABLE
L302	20-3117	COIL RCF TUNABLE
L303	20-3619-03	COIL RCF TUNABLE
L501	149-379	FERRITE SLEEVE
L701	20-3907-03	COIL RCF 1.8 uH
LTC2	20-3907-03	COIL RCF 1.8 uH
L703	149-417	FERRITE CORE SLEEVE
L704	149-417	FERRITE CORE SLEEVE
LA01	20-3405	COIL RCF TUNABLE
LS0C	20-3907-03	COIL RCF 1.8 uH
LB03	20-3907-03	COIL RCF 1.8 uH
LB04	20-3907-03	COIL RCF 1.8 uH
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD
L1002	20-3907-03	COIL RCF 1.8 uH
S801	52-956-04	SPARK GAP
S802	52-956-04	SPARK GAP
S803	52-956-04	SPARK GAP
T301	95-2909-08	TRANSFORMER RCF TUNABLE
T401	95-3506	SWEEP TRANSFORMER

ITEM NUMBER	PART NUMBER	DESCRIPTION
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ INPUT
CR101	103-306	DIODE SWITCHING
CR102	103-306	DIODE SWITCHING
CR401	103-142-01	DIODE LOW VOLTAGE GENERAL
CR501	103-295	DIODE LOW VOLTAGE GENERAL
CR502	103-261-04	DIODE LOW VOLTAGE GENERAL
CR503	103-263	DIODE LOW VOLTAGE GENERAL
CR504	103-295-02	DIODE LOW VOLTAGE GENERAL
CR505	103-263	DIODE LOW VOLTAGE GENERAL
CR506	103-334	DIODE ZENER 30V 250 MW
CR507	103-279-10	DIODE ZENER 6.2V .5W
CR508		
CR509	103-142-01	DIODE LOW VOLTAGE GENERAL
CR701	103-254	DIODE LOW VOLTAGE GENERAL
CR702	103-279-20	DIODE ZENER 11V .5W
CR703	103-142-01	DIODE LOW VOLTAGE GENERAL
CR704	103-279	DIODE ZENER
CR705	103-142-01	DIODE LOW VOLTAGE GENERAL
CR706	103-142-01	DIODE LOW VOLTAGE GENERAL
CR707	103-142-01	DIODE LOW VOLTAGE GENERAL
CR708	103-279-19	DIODE ZENER 10V .5W
CR709	103-142-01	DIODE LOW VOLTAGE GENERAL
CR710	103-142-01	DIODE LOW VOLTAGE GENERAL
CR711	103-142-01	DIODE LOW VOLTAGE GENERAL
CR712	103-142-01	DIODE LOW VOLTAGE GENERAL
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
CR1001	103-142-01	DIODE LOW VOLTAGE GENERAL
Q401	121-975	TRANSISTOR NPN AGC INVERTOR
Q501	121-819	TRANSISTOR NPN HORIZ DRIVER
Q502	121-1029-01	TRANSISTOR NPN HORIZ OUTPUT
Q601	121-975	TRANSISTOR NPN VERT DRIVER
Q602	121-973	TRANSISTOR NPN VERT OUTPUT
Q603	121-973	TRANSISTOR PNP VERT OUTPUT 2
Q701	121-1021	TRANSISTOR PNP CHARGER DARLINGTON AMP
Q702	121-984	TRANSISTOR PNP REGULATOR CHARGER
Q703	121-975	TRANSISTOR NPN ERROR AMPL 1
Q704	121-1021	TRANSISTOR PNP ERROR AMPL 2
Q705	121-984	TRANSISTOR PNP MAIN REGULATOR
Q706	121-975	TRANSISTOR NPN PS ELECTRONIC SWITCH
Q707	121-975	TRANSISTOR NPN CLOCK-PS REG. INTERFACE
Q708	121-699	TRANSISTOR PNP PS ELECTRONIC SWITCH DRIVER
Q709	121-975	TRANSISTOR NPN CLOCK-AUDIO REG. INTERFACE
Q710	121-699	TRANSISTOR PNP AUDIO ELECTRONIC SWITCH
Q711	121-992-01	TRANSISTOR NPN AUDIO REGULATOR
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
IC301	221-201-09 ALT 221-201	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMP AND PROCESSOR
IC1001	221-48	INTEGRATED CIRCUIT SOUND
IC1002	221-202	INTEGRATED CKT GAIN BLOCK AUDIO OUTPUT

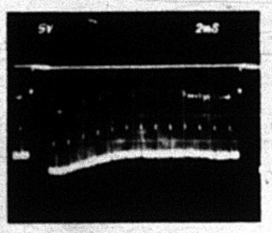
ITEM NUMBER	PART NUMBER	DESCRIPTION
FF1701	136-120-01	FUSE 1.5 AMP NORMAL LOG 32V
S201	85-1581	SWITCH ON-OFF SNOOZE
S202	85-1603	SWITCH ANTENNA SELECTOR
S263	85-1580	SWITCH TV FUNCTION
S204	85-1582	SWITCH CLOCK FUNCTION
S205	85-1583	SWITCH CLOCK SETTING
S206	85-1583	SWITCH CLOCK SETTING
S207	85-1587	SWITCH CLOCK LIGHT
S208	85-1589	SWITCH BATTERY CHARGE
J701	78-2071	BATTERY JACK
J201	78-2984	SOCKET CRT
J202	78-2239	JACK EARPHONE
TV101	175-2038	TUNER VHF-UHF VARACTOR
BW2201	85-3508	BALUN COIL
T202	95-3481-01	DEFLECTION YOKE
RY2201	105-709	CATHODE RAY TUBE
CL201	172-82	CLOCK LCD DIGITAL
RADIO	A-8784	TUNER AM-FM
LS	49-1314-01	SPEAKER
BB01	5-124	1.5V BATTERY "AA"

SHEET 4

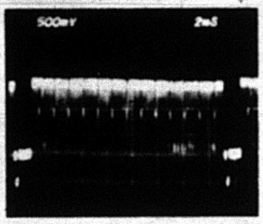
5NB2X POWER SUPPLY/CLOCK MODULE SCHEMATIC



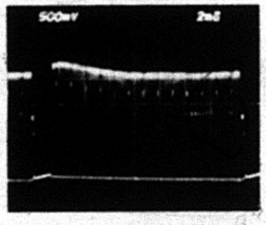
5NB2X WAVEFORMS



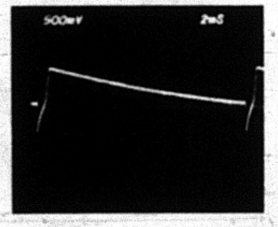
① COLLECTOR Q801
5V PER DIVISION
2mS PER DIVISION



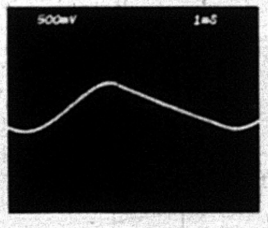
② PIN #28 IC301
500mV PER DIVISION
2mS PER DIVISION



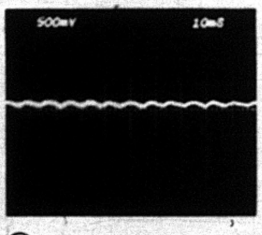
③ PIN #24 IC301
500mV PER DIVISION
2mS PER DIVISION



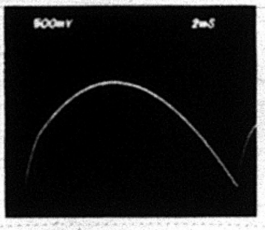
④ PIN #22 IC301
500mV PER DIVISION
2mS PER DIVISION



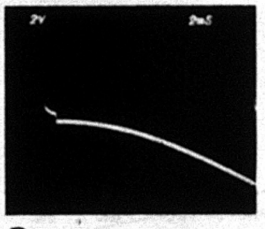
⑤ EMITTER Q710
500mV PER DIVISION
1mS PER DIVISION



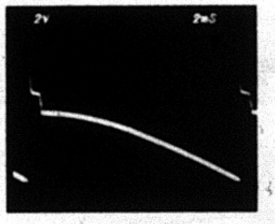
⑥ EMITTER Q711
500mV PER DIVISION
10mS PER DIVISION



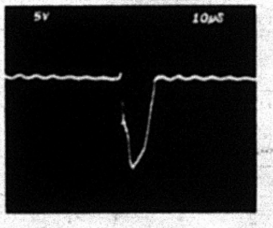
⑦ RED LEAD VERTICAL YOKE
500mV PER DIVISION
2mS PER DIVISION



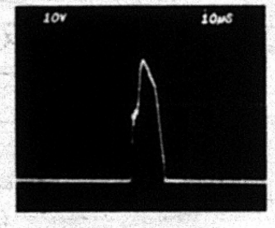
⑧ BLUE LEAD VERTICAL YOKE
2V PER DIVISION
2mS PER DIVISION



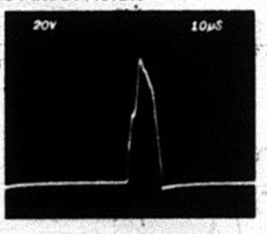
⑨ COLLECTOR Q601
2V PER DIVISION
2mS PER DIVISION



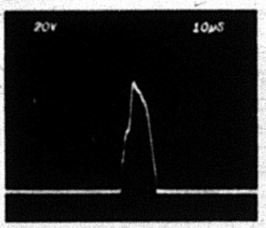
⑩ PIN #10 HORIZONTAL SWEEP TRANS.
5V PER DIVISION
10µS PER DIVISION



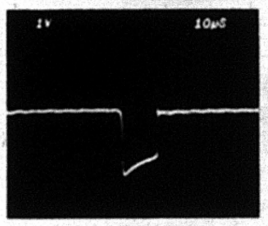
⑪ PIN #3 HORIZONTAL SWEEP TRANS.
10V PER DIVISION
10µS PER DIVISION



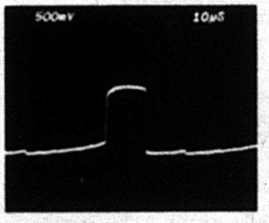
⑫ YELLOW LEAD HORIZONTAL YOKE
20V PER DIVISION
10µS PER DIVISION



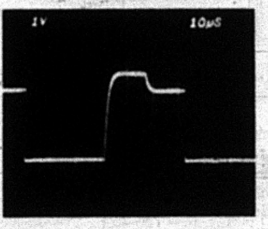
⑬ COLLECTOR Q502
20V PER DIVISION
10µS PER DIVISION



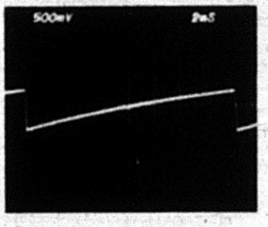
⑭ BASE Q502
1V PER DIVISION
10µS PER DIVISION



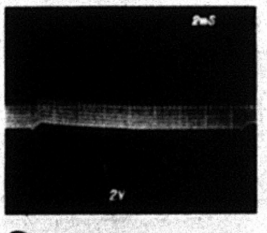
⑮ BASE Q501
500mV PER DIVISION
10µS PER DIVISION



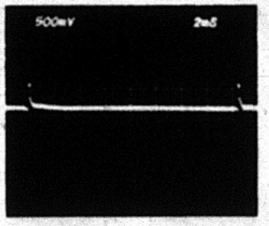
⑯ PIN #17 IC103
1V PER DIVISION
10µS PER DIVISION



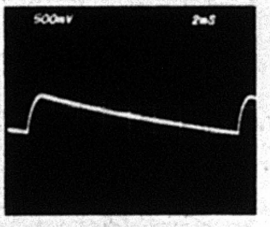
⑰ PIN #20 IC103
500mV PER DIVISION
2mS PER DIVISION



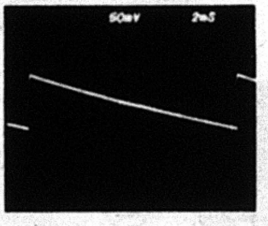
⑱ COLLECTOR Q705
2V PER DIVISION
2mS PER DIVISION



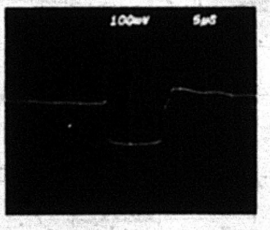
⑲ PIN #7 IC301
500mV PER DIVISION
2mS PER DIVISION



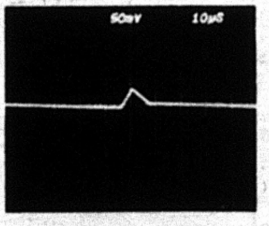
⑳ PIN #21 IC301
500mV PER DIVISION
2mS PER DIVISION



㉑ PIN #23 IC301
50mV PER DIVISION
2mS PER DIVISION



㉒ PIN #15 IC301
100mV PER DIVISION
5µS PER DIVISION



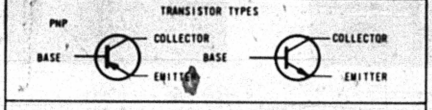
㉓ PIN #14 IC301
50mV PER DIVISION
10µS PER DIVISION

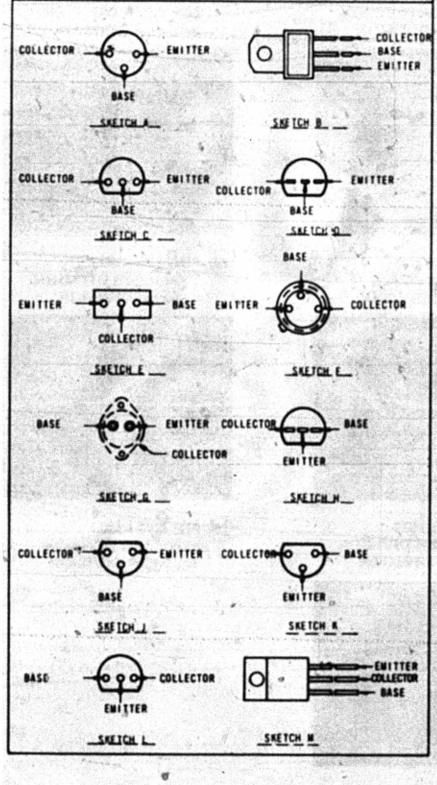
SEMI CONDUCTOR OUTLINE

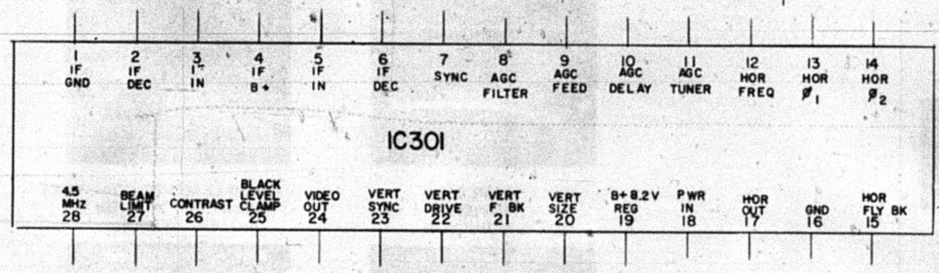
BOTTOM VIEWS OF TRANSISTORS

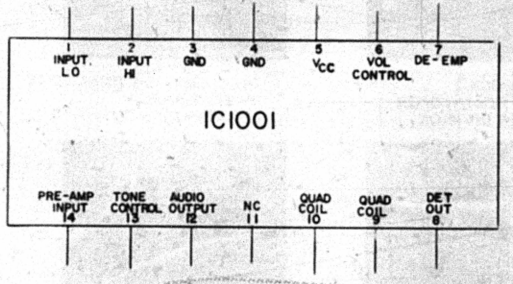
Q NUMBER	PART NUMBER	SKETCHES* A	B	C	D	E	F	G	H	J	K	L	M
Q501	121-819				X					X			
QX502	121-1028-01												X
Q601	121-975				X								
Q602	121-819				X					X			
Q603	121-973				X					X			
Q701	121-1021				X								
QX702	121-994												X
Q703	121-975				X								
Q704	121-1021				X								
QX705	121-994												X
Q706	121-975				X								
Q707	121-975				X								
Q708	121-699				X					X			
Q709	121-975				X								
Q710	121-699				X					X			
Q711	121-992-01												X
Q801	121-990		X										
Q401	121-975				X								

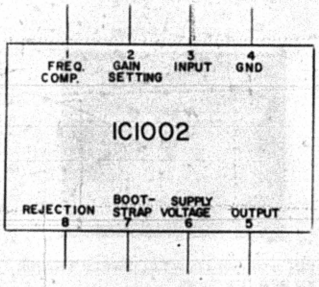
TRANSISTOR TYPES



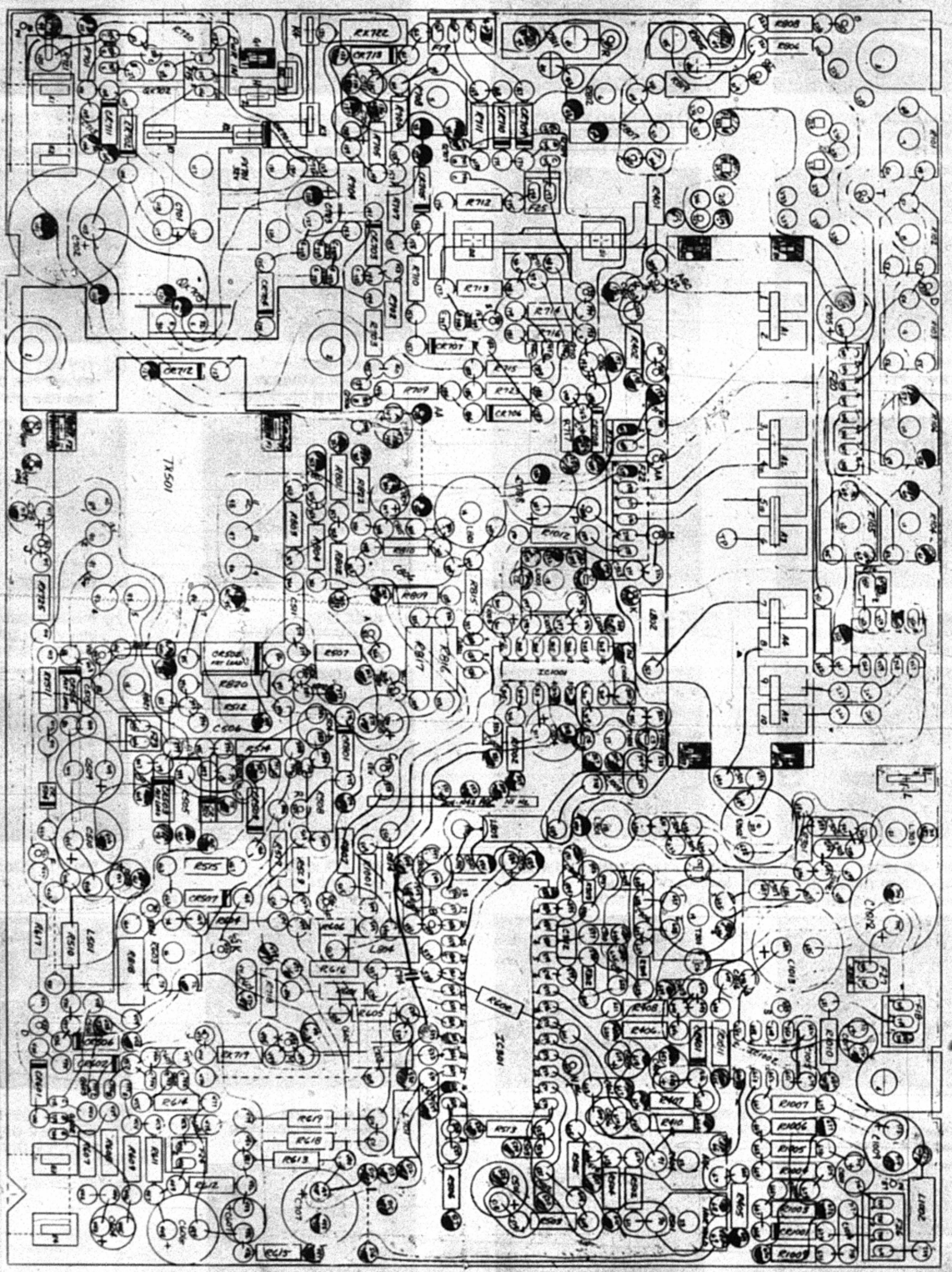




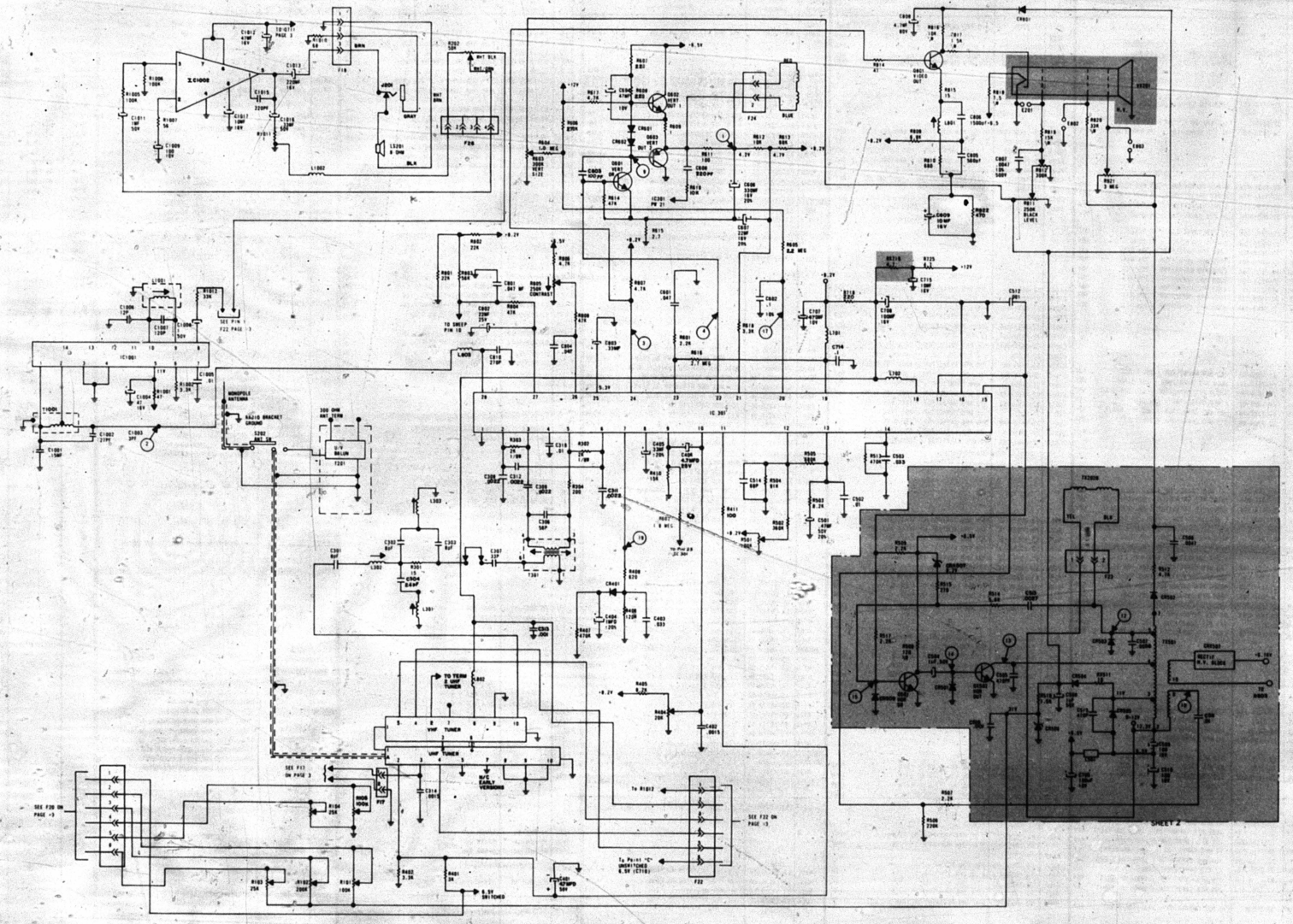




5NB2X COMPONENT LAYOUT



5NB4X CHASSIS SCHEMATIC



F-1

F-2

5NB4X LEGEND

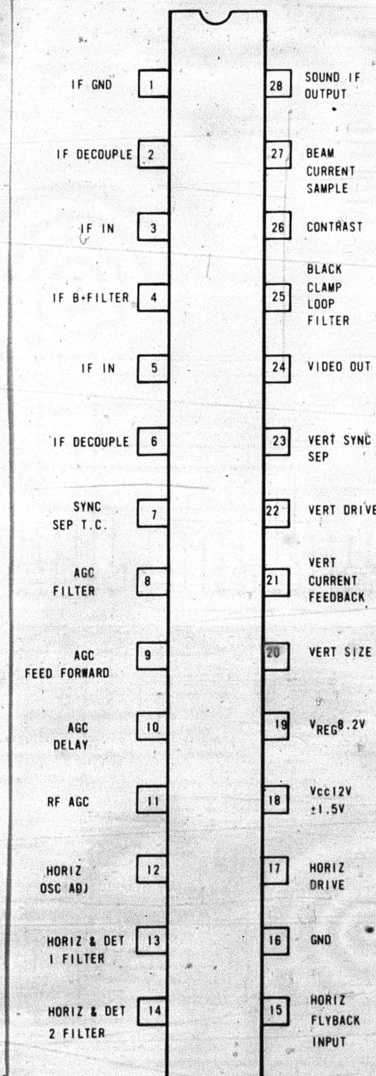
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C201			
C202			
C203	22-5251	.15MFD CAPACITOR ±20% DISC	10V
C204	22-7631-09A	10 PFD CAPACITOR ±.25 PF DISC	50V
C301	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C302	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C303	22-7631-07A	8 PFD CAPACITOR ±.25PF N150 DISC	50V
C304	22-7631-18A	24 PFD CAPACITOR ±.25PF N150 DISC	50V
C305	22-7631-09A	10 PFD CAPACITOR ±.25PF N150 DISC	50V
C306	22-7631-27A	56 PFD CAPACITOR ±5% N150 DISC	50V
C307	22-7619-22A	33 PFD CAPACITOR ±5% NPO DISC	50V
C308	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C309	22-7614-16A	.0022MFD CAPACITOR +20% DISC	50V
C310	22-7615-08A	.01 MFD CAPACITOR +80% 20% DISC	50V
C311	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C312	22-7614-16A	.0022 MFD CAPACITOR ±20% DISC	50V
C313	22-7614-12A	1000 PFD CAPACITOR ±20% DISC	50V
C314	22-7614-14A	1500 PFD CAPACITOR ±20% DISC	50V
C401	22-7389-05	4.7MFD CAPACITOR ±20% ELECT	50V
C402	22-7614-14A	1500 PFD CAPACITOR +20% DISC	50V
C403	22-7615-08A	.033 MFD CAPACITOR +80%-20% DISC	50V
C404	22-7389-02	1 MFD CAPACITOR ±20% ELECT	25V
C405	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C406	22-7152-03A	4.7MFD CAPACITOR +100-10%ELECT	25V
C501	22-7390-02	.47 MFD CAPACITOR ±20% ELECT	50V
C502	22-7615-08A	.01 MFD CAPACITOR +80%-20% DISC	50V
C503	22-7615-09A	.033MFD CAPACITOR +80%-20% DISC	50V
C504	22-7153A	1 MFD CAPACITOR ±100%-10% ELECT	50V
C505	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C506	22-7440	.0047 MFD CAPACITOR ±10% DISC	500V
C507	22-7776-09	.0056 MFD CAPACITOR ±5% POLYESTER	200V
C508	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C509	22-7151-08A	100 MFD CAPACITOR +100%-10% ELECT	16V
C510	22-7151-08A	100 MFD CAPACITOR +100%-10% ELECT	16V
C511	22-7614-24D	.01 MFD CAPACITOR ±20% DISC	50V
C512	22-7614-12A	1000 PFD CAPACITOR ±20% DISC	50V
C513	22-7777-05	.0027 MFD CAPACITOR ±10% POLYESTER	200V
C514	22-7631-29A	68 PFD CAPACITOR ±5% DISC	50V
C515	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C516	22-7614-12A	1000 PFD CAPACITOR±20% DISC	50V
C601	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C602	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C603	22-7613A	100PFD CAPACITOR ±10% DISC	50V
C604	22-7150-07A	47 MFD CAPACITOR +100%-10% ELECT	10V
C605			
C606	22-7716-11	330 MFD CAPACITOR ±20% ELECT	10V
C607	22-7579	22 MFD CAPACITOR ±20% ELECT	16V
C608	22-7613-04A	220 PFD CAPACITOR ±10% DISC	50V
C701	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C702	22-7151-13A	2200 MFD CAPACITOR +100%-10% ELECT	16V
C703	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C704	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C705	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C706	22-7151-05A	22 MFD CAPACITOR +100%-10% ELECT	16V
C707	22-7150-08	100 MFD CAPACITOR +100%-10% ELECT	10V
C708	22-7151-08A	100 MFD CAPACITOR +100%-10% ELECT	16V
C709	22-7614-11A	470 PFD CAPACITOR ±20% DISC	50V
C710	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C711			
C712	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C713	22-3217	470 PFD CAPACITOR ±20% DISC	500V
C714	22-7775-24	.1 MFD CAPACITOR 20% POLYESTER	100V
C715	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C716	22-7613-12A	1000 PFD CAPACITOR±10% DISC	50V
C801	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C802	22-7389-03	2.2 MFD CAPACITOR ±20% ELECT	25V
C803	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C804	22-7615-10A	.047 PFD CAPACITOR +80-20%DISC	50V
C805	22-7613-09A	560 PFD CAPACITOR ±10% DISC	50V
C806	22-7459-01	1500 PFD CAPACITOR ±10% TUBULAR	100V
C807	22-7440	.0047 MFD CAPACITOR ±10% DISC	500V
C808	22-7156-03A	4.7 MFD CAPACITOR +100%-10% ELECT	80V
C809	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C810	22-7613-05A	270 PFD CAPACITOR ±10% DISC	50V

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C1001	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1002	22-7632-18A	27 PFD CAPACITOR ±10% N150 DISC	50V
C1003	22-7631-02	3 PFD CAPACITOR ±.25 PF N150 DISC	50V
C1004	22-7151-07A	47 MFD CAPACITOR +100-10% ELECT.	16V
C1005	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C1006	22-7639-10A	12 PFD CAPACITOR ±5% N330 DISC	50V
C1007	22-7625-30A	120 PFD CAPACITOR ±5% N30 DISC	50V
C1008	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C1009	22-7150-08A	100 MFD CAPACITOR +100%-10% ELECT	10V
C1010			
C1011	22-7153A	1 MFD CAPACITOR +100%-10% ELECT	50V
C1012	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1013	22-7151-08A	220 MFD CAPACITOR +100%-10% ELECT	16V
C1014			
C1015	22-7614-04	220 PFD CAPACITOR ±20% DISC	50V
C1016	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C1017	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
R101	63-10851-12	100K OHM CONTROL HI-SCALE ADJ VHF	
R102	63-10851-20	200K OHM CONTROL HI-SCALE ADJ. VHF	
R103	63-10851-18	100K OHM CONTROL HI-SCALE ADJ. UHF	
R104	63-10851-11	25K OHM CONTROL HI-SCALE ADJ. VHF	
R105	63-10851-12	100K OHM CONTROL LO-SCALE ADJ. VHF	
R201	63-10888	100K OHM CONTROL TV TUNING	
R202	63-10873	50K OHM CONTROL VOLUME	
R203	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R204	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R301	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R302	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R303	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R304	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R401	63-10235-83	3K OHM RESISTOR 5% FILM	1/4W
R402	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R403			
R404	63-10851-16	20K OHM CONTROL AGC	
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R407	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R408	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W
R409			
R410	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R411	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R501	63-10851-12	100K OHM CONTROL HORIZ. HOLD	
R502	63-10236-33	390K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R504	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R505	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R506	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R507	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R508	63-10243-50	120 OHM RESISTOR 5% FILM	1/2W
R509	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R510	63-10235-93	7.5K OHM RESISTOR 5% FILM	1/4W
R511	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R512	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R513	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R514	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R515	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R516			
R517	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R601	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-50	1.8 MEG OHM RESISTOR 5% FILM	1/4W
R603	63-10851-17	300K OHM CONTROL VERT SIZE	
R604	63-10236-44	1 MEG OHM RESISTOR 5% FILM	1/4W
R605	63-10236-82	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R606	63-10236-30	270K OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R609	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R610			
R611	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R612	63-10235-96	10K OHM RESISTOR 5% FILM	1/1W
R613	63-10236-16	68K OHM RESISTOR 5% FILM	1/4W
R614	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R615	63-10235-10	2.7 OHM RESISTOR 5% FILM	1/4W
R616	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R617	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R618	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R619	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W

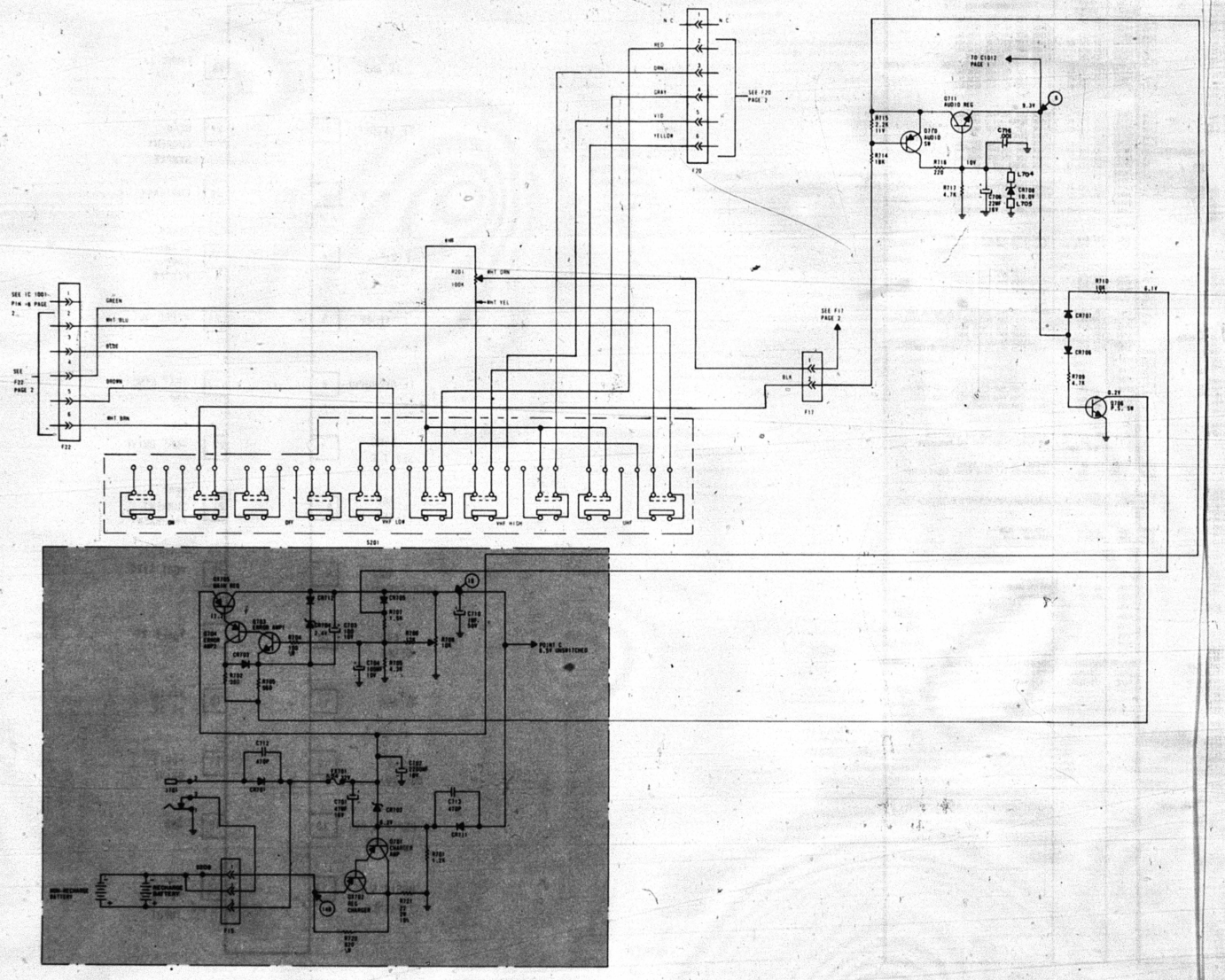
ITEM NUMBER	PART NUMBER	DESCRIPTION	
R701	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R702	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R703	63-10235-66	560 OHM RESISTOR 5% FILM	1/4W
R704	63-10243-48	100 OHM RESISTOR 5% FILM	1/2W
R705	63-10235-87	4.3K OHM RESISTOR 5% FILM	1/4W
R706	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R707	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R708	63-10851-18	10K OHM CONTROL VOLT. ADJ	
R709	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R710	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R711			
R712			
R713			
R714	63-10236-02	18K OHM RESISTOR 5% FILM	1/4W
R715	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R716	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R717	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R718	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R719	63-10885-18	4.7 OHM RESISTOR 5% FILM	1/2W
R720	63-10243-70	820 OHM RESISTOR 5% FILM	1/2W
R721	63-10422-58	22 OHM RESISTOR 10% WIREWOUND	2W
R722			
R725	63-10885-18	4.7 OHM RESISTOR 5% FILM	1/2W
R801	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R805	63-10837-07	250K OHM CONTROL CONTRAST	
R806	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R807	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R809	63-10235-92	6.8K OHM RESISTOR 5% FILM	1/4W
R810	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R811	63-10837-07	250K OHM CONTROL BLACK LEVEL	
R812	63-10851-17	300K OHM CONTROL BLACKLEVEL RANGE	
R813			
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R816	63-10243-96	10K OHM RESISTOR 5% FILM	1/2W
R817	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R818	63-10243-21	7.5 OHM RESISTOR 5% FILM	1/2W
R819	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R820	63-7840	33K OHM RESISTOR 10% CARBON	1/2W
R821	63-10851-19	3 MEG OHM CONTROL FOCUS	
R822	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1001	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1003			
R1004			
R1005	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1006	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1007	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R1008			
R1009			
R1010	63-10235-44	68 OHM RESISTOR 5% FILM	1/4W
R1011	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R1012	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
L201			
L301	20-3619-03	COIL RCF TUNABLE	
L302	20-3117	COIL RCF TUNABLE	
L303	20-3619-03	COIL RCF TUNABLE	
L501	149-379	FERRITE SLEEVE	
L701	20-3907-03	COIL RCF 1.8MH	
L702	20-3907-03	COIL RCF 1.8MH	
L704	149-418	FERRITE SLEEVE	
L705	149-418	FERRITE SLEEVE	
L601	20-3405	COIL RCF TUNABLE 4.5 MHZ	
L602	20-3907-03	COIL RCF 1.8 MH	
L603	20-3907-03	COIL RCF 1.8 MH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD.	
L1002	20-3907-03	COIL RCF 1.8 MH	
E601	52-958-04	SPARK GAP	
E602	52-958-04	SPARK GAP	
E603	52-958-04	SPARK GAP	
LS201	49-1314	SPEAKER 8 OHM IMPED.	
T201	95-3508	TRANSFORMER BALUN	
T202A	95-3481	TRANSFORMER DEFLECTION YOKE VERT	
T202B		TRANSFORMER DEFLECTION YOKE HORIZ	
T301	95-2909-08	TRANSFORMER RCF TUNABLE	
[illegible]	[illegible]	SWEEP TRANSFORMER	
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ INPUT	
CR401	103-142-01	DIODE LOW VOLTAGE GENERAL	

ITEM NUMBER	PART NUMBER	DESCRIPTION
CR501	103-295	DIODE LOW VOLTAGE GENERAL
CR502	103-261-04	DIODE LOW VOLTAGE GENERAL
CR503	103-263	DIODE LOW VOLTAGE GENERAL
CR504	103-295-02	DIODE LOW VOLTAGE GENERAL
CR505	103-263	DIODE LOW VOLTAGE GENERAL
CR506	103-334	DIODE ZENER 30V 250 MW
CR507	103-279-18	DIODE ZENER 8.2V 0.5W
CR509	103-142-01	DIODE LOW VOLTAGE GENERAL
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL
CR701	103-254	DIODE LOW VOLTAGE GENERAL
CR702	103-279-20	DIODE ZENER 11V 0.5W
CR703	103-142-01	DIODE LOW VOLTAGE GENERAL
CR704	103-279	DIODE ZENER
CR705	103-142-01	DIODE LOW VOLTAGE GENERAL
CR706	103-142-01	DIODE LOW VOLTAGE GENERAL
CR707	103-142-01	DIODE LOW VOLTAGE GENERAL
CR708	103-279-19	DIODE ZENER 10V 0.5W
CR709		
CR710		
CR711	103-142-01	DIODE LOW VOLTAGE GENERAL
CR712	103-142-01	DIODE LOW VOLTAGE GENERAL
CR713		
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
CR1001		
Q501	121-819	TRANSISTOR NPN HORIZ DRIVER
Q502	121-1028-01	TRANSISTOR NPN HORIZ OUTPUT
Q601	121-875	TRANSISTOR NPN VERT DRIVER
Q602	121-819	TRANSISTOR NPN VERT OUTPUT 1
Q603	121-873	TRANSISTOR PNP VERT OUTPUT 2
Q701	121-1021	TRANSISTOR PNP CHARGER DARLINGTON AMP
Q702	121-894	TRANSISTOR PNP REGULATOR CHARGER
Q703	121-875	TRANSISTOR NPN ERROR AMPL 1
Q704	121-1021	TRANSISTOR PNP ERROR AMPL 2
Q705	121-894	TRANSISTOR PNP MAIN REGULATOR
Q706	121-875	TRANSISTOR NPN PS ELECTRONIC SWITCH
Q707		
Q708		
Q709		
Q710	121-699	TRANSISTOR PNP AUDIO ELECTRONIC SWITCH
Q711	121-992-01	TRANSISTOR NPN AUDIO REGULATOR
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
IC301	221-201-03 OR 221-201	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMP AND PROCESSOR
IC1001	221-48	INTEGRATED CIRCUIT SOUND
IC1002	221-202	INTEGRATED CKT GAIN BLOCK AUDIO OUTPUT
F701	138-128-01	FUSE 1.5 AMP NORMAL LAG 32V
J201	78-2239	EARPHONE JACK
J701	78-2971	BATTERY JACK
S201	85-1581-01	SWITCH ON-OFF/TV FUNCTION
S202	85-1603	SWITCH ANTENNA SELECTOR
S203		
S204		
S205		
S206		
S207		
S208	85-1589	SWITCH BATTERY CHARGE
V201	100-708	CRT
TU101	175-2238	TUNER VARACTOR VHF MITSUMI
TU102	175-2239	TUNER VARACTOR UHF MITSUMI

IC301



5NB4X POWER SUPPLY SCHEMATIC

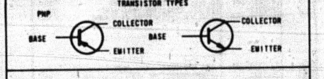


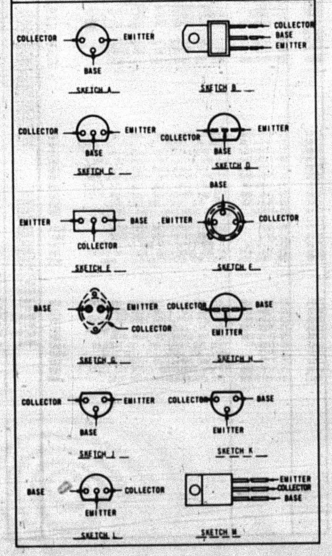
SEMI CONDUCTOR OUTLINE

BOTTOM VIEWS OF TRANSISTORS

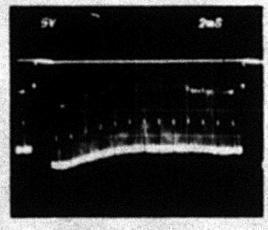
Q NUMBER	PART NUMBER	SKETCHES A	B	C	D	E	F	G	H	J	K	L	M
Q501	121-815												
Q502	121-1026-01		X	X						X		X	
Q601	121-975		X	X						X			
Q602	121-819		X	X						X			
Q603	121-973		X							X			
Q701	121-1021		X										
Q702	121-994												X
Q703	121-975		X	X						X			
Q704	121-1021		X										
Q705	121-994												X
Q706	121-975		X	X						X			
Q707													
Q708													
Q709													
Q710	121-699			X						X			
Q711	121-982-01											X	
Q801	121-990	X											

TRANSISTOR TYPES

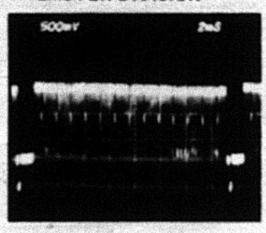




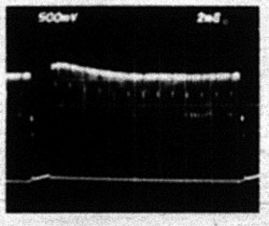
5NB4X, 5NB5X WAVEFORMS



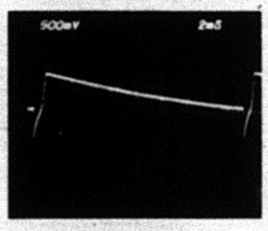
① COLLECTOR Q801
5V PER DIVISION
2mS PER DIVISION



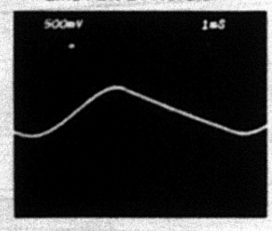
② PIN #28 IC301
500mV PER DIVISION
2mS PER DIVISION



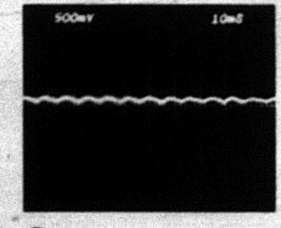
③ PIN #24 IC 301
500mV PER DIVISION
2mS PER DIVISION



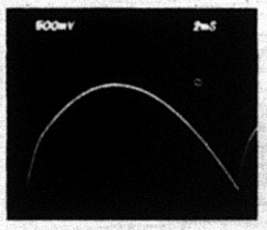
④ PIN #22 IC301
500mV PER DIVISION
2mS PER DIVISION



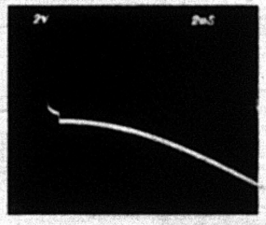
⑤ EMITTER Q710
500mV PER DIVISION
1mS PER DIVISION



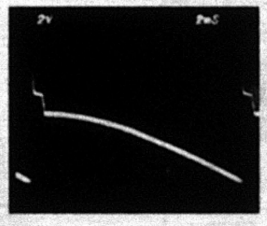
⑥ EMITTER Q711
500mV PER DIVISION
10mS PER DIVISION



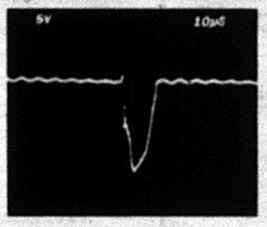
⑦ RED LEAD VERTICAL YOKE
500mV PER DIVISION
2mS PER DIVISION



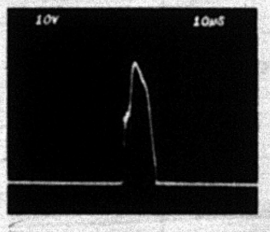
⑧ BLUE LEAD VERTICAL YOKE
2V PER DIVISION
2mS PER DIVISION



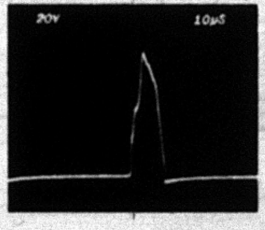
⑨ COLLECTOR Q601
2V PER DIVISION
2mS PER DIVISION



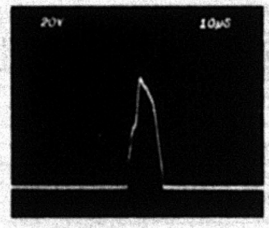
⑩ PIN #10 HORIZONTAL SWEEP TRANS.
5V PER DIVISION
10µS PER DIVISION



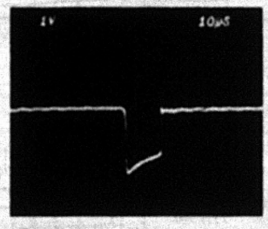
⑪ PIN #3 HORIZONTAL SWEEP TRANS.
10V PER DIVISION
10µS PER DIVISION



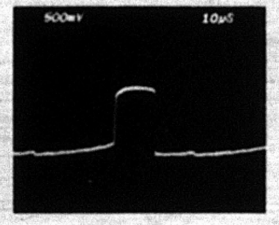
⑫ YELLOW LEAD HORIZONTAL YOKE
20V PER DIVISION
10µS PER DIVISION



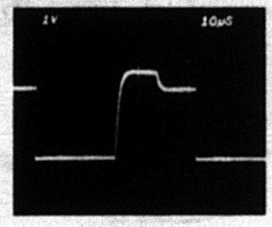
⑬ COLLECTOR Q502
20V PER DIVISION
10µS PER DIVISION



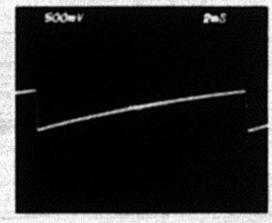
⑭ BASE Q502
1V PER DIVISION
10µS PER DIVISION



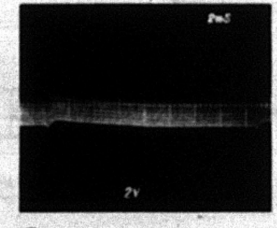
⑮ BASE Q501
500mV PER DIVISION
10µS PER DIVISION



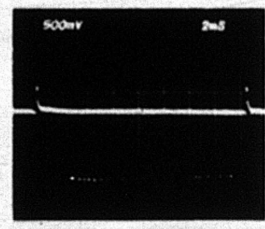
⑯ PIN #17 IC103
1V PER DIVISION
10µS PER DIVISION



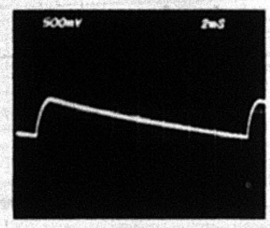
⑰ PIN #20 IC103
500mV PER DIVISION
2mS PER DIVISION



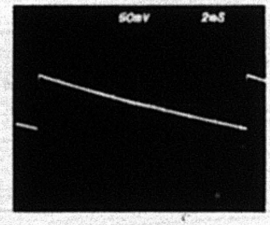
⑱ COLLECTOR Q705
2V PER DIVISION
2mS PER DIVISION



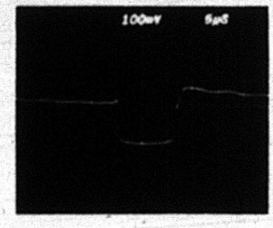
⑲ PIN #7 IC301
500mV PER DIVISION
2mS PER DIVISION



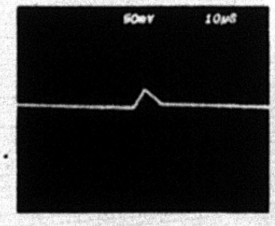
⑳ PIN #21 IC301
500mV PER DIVISION
2mS PER DIVISION



㉑ PIN #23 IC301
50mV PER DIVISION
2mS PER DIVISION

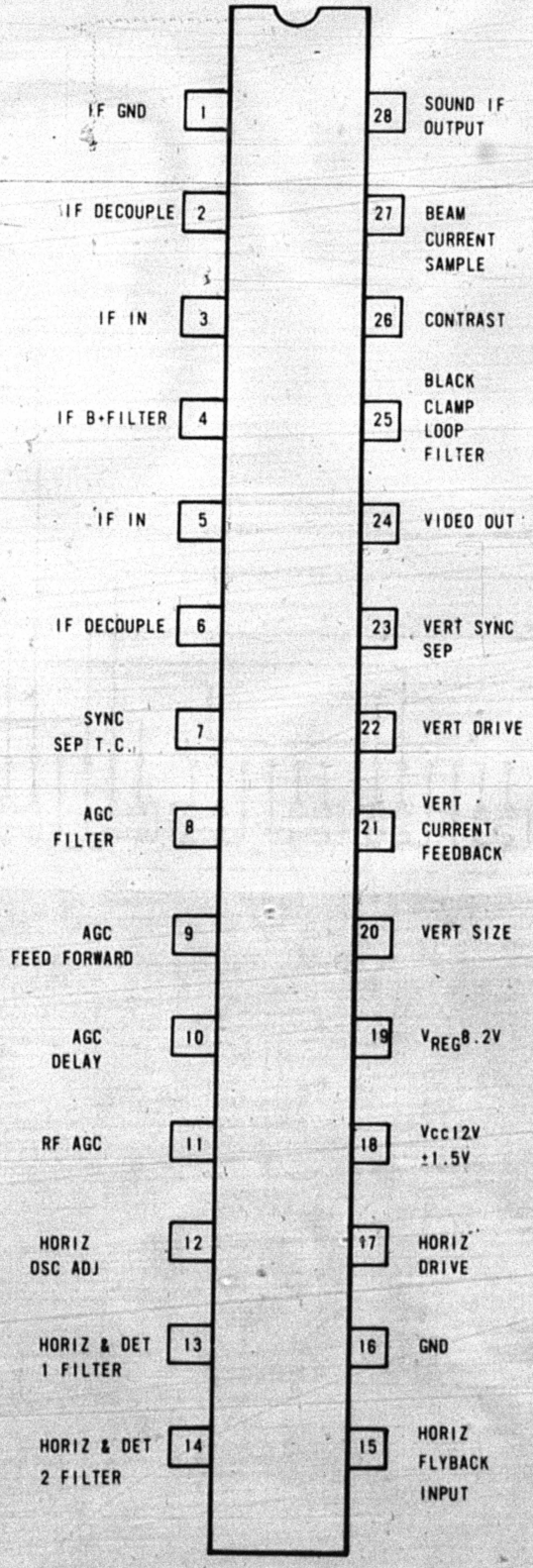


㉒ PIN #15 IC301
100mV PER DIVISION
5µS PER DIVISION

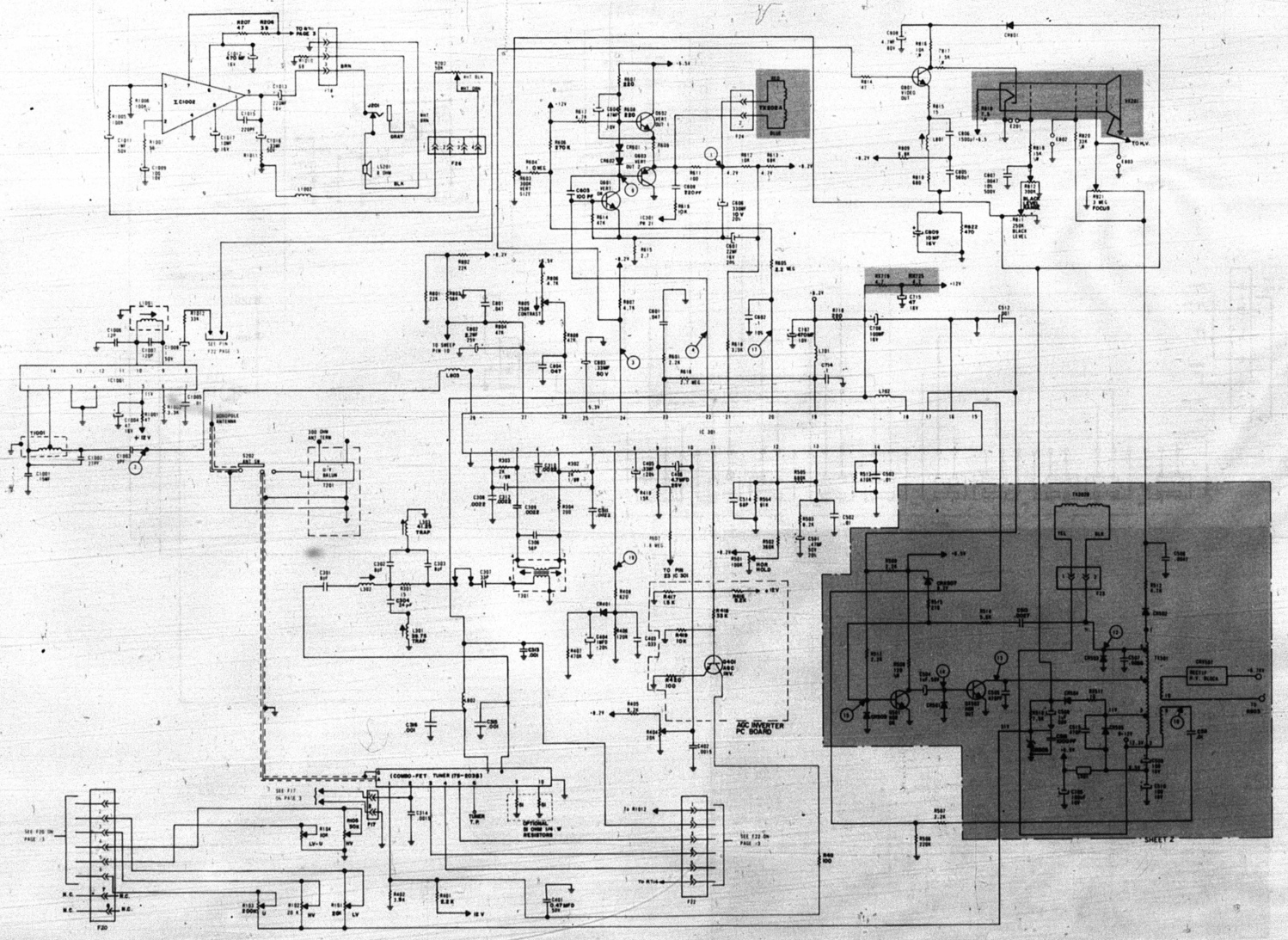


㉓ PIN #14 IC301
50mV PER DIVISION
10µS PER DIVISION

IC301


IF GND
1
IF DECOUPLE
2
IF IN
3
IF B+FILTER
4
IF IN
5
IF DECOUPLE
6
SYNC SEP T.C.
7
AGC FILTER
8
AGC FEED FORWARD
9
AGC DELAY
10
RF AGC
11
HORIZ OSC ADJ
12
HORIZ & DET 1 FILTER
13
HORIZ & DET 2 FILTER
14
28
SOUND IF OUTPUT
27
BEAM CURRENT SAMPLE
26
CONTRAST
25
BLACK CLAMP LOOP FILTER
24
VIDEO OUT
23
VERT SYNC SEP
22
VERT DRIVE
21
VERT CURRENT FEEDBACK
20
VERT SIZE
19
V_{REG}8.2V
18
Vcc12V ±1.5V
17
HORIZ DRIVE
16
GND
15
HORIZ FLYBACK INPUT

5NB5X CHASSIS SCHEMATIC



F-9

F-10

5NB5X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C301	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC	50V
C302	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC	50V
C303	22-7631-07A	8 PFD CAPACITOR ± .25 PFD DISC	50V
C304	22-7631-18A	24 PFD CAPACITOR ± 5% DISC	50V
C305			
C306	22-7631-27A	56 PFD CAPACITOR ± 5% DISC	50V
C307	22-7619-22A	33 PFD CAPACITOR ± 5% DISC	50V
C308	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC	50V
C309	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC	50V
C310	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC	50V
C311	22-7614-16A	2200 PFD CAPACITOR ± 20% DISC	50V
C312	22-7614-16	2200 PFD CAPACITOR ± 20% DISC	50V
C313	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC	50V
C314	22-7614-14A	1500 PFD CAPACITOR ± 20% DISC	50V
C315	22-7613-12A	1000 PFD CAPACITOR ± 10% DISC	50V
C316	22-7613-12A	1000 PFD CAPACITOR ± 10% DISC	50V
C401	22-7390-02	.47 MFD CAPACITOR ± 20% ELECT	50V
C402	22-7614-14A	1500 PFD CAPACITOR ± 20% DISC	50V
C403	22-7615-08A	33000 PFD CAPACITOR + 80%-20% DISC	50V
C404	22-7389-00	1 MFD CAPACITOR ± 20% ELECT	25V
C405	22-7390-05	.33 MFD CAPACITOR + 50%-10% ELECT	50V
C406	22-7389-05	.7 MFD CAPACITOR ± 20% ELECT	25V
C501	22-7390-02	.47 MFD CAPACITOR ± 20% ELECT	50V
C502	22-7615-06A	10000 PFD CAPACITOR + 80%-20% DISC	50V
C503	22-7615-06A	10000 PFD CAPACITOR + 80%-20% DISC	50V
C504	22-7153A	1 MFD CAPACITOR + 100%-10% ELECT	50V
CX505	22-3217	470 PFD CAPACITOR ± 20% DISC	500V
C506	22-7440	4700 PFD CAPACITOR ± 10% DISC	500V
CX507	22-7716-09	.0056 MFD CAPACITOR ± 5% POLYESTER	200V
C508	22-7153A	1 MFD CAPACITOR + 100%-10% ELECT	50V
C509	22-7151-08A	100 MFD CAPACITOR + 100%-10% ELECT	16V
C510	22-7151-08A	100 MFD CAPACITOR + 100%-10% ELECT	16V
C511	22-7614-24B	10000 PFD CAPACITOR ± 20% DISC	50V
C512	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC	50V
CX513	22-7777-05	.0027 MFD CAPACITOR ± 10% POLYESTER	200V
C514	22-7631-29A	68 PFD CAPACITOR ± 5% DISC	50V
C515	22-3217	470 PFD CAPACITOR ± 20% DISC	500V
C516	22-7614-12A	1000 PFD CAPACITOR ± 20% DISC	50V
C601	22-7615-10A	47000 PFD CAPACITOR + 80%-20% DISC	50V
C602	22-7547	1 MFD CAPACITOR ± 10% POLYESTER	50V
C603	22-7613A	100 PFD CAPACITOR ± 10% DISC	50V
C604	22-7150-07A	47 MFD CAPACITOR + 100%-10% ELECT	10V
C605			
C606	22-7718-11	330 MFD CAPACITOR ± 20% ELECT	10V
C607	22-7578	22 MFD CAPACITOR ± 20% ELECT	16V
C608	22-7613-04A	220 PFD CAPACITOR ± 10% DISC	50V
C701	22-7151-07A	47 MFD CAPACITOR + 100%-10% ELECT	16V
C702	22-7151-13A	2200 MFD CAPACITOR + 100%-10% ELECT	16V
C703	22-7150-08A	100 MFD CAPACITOR + 100%-10% ELECT	10V
C704	22-7151-04A	10 MFD CAPACITOR + 100%-10% ELECT	16V
C705	22-7150-08A	100 MFD CAPACITOR + 100%-10% ELECT	10V
C706	22-7151-05A	22 MFD CAPACITOR + 100%-10% ELECT	16V
C707	22-7150-11A	470 MFD CAPACITOR + 100%-10% ELECT	10V
C708	22-7151-08A	100 MFD CAPACITOR + 100%-10% ELECT	16V
C709			
C710	22-7153A	1 MFD CAPACITOR + 100%-10% ELECT	50V
C711			

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C712	22-3217	470 PFD CAPACITOR ± 20% DISC	500V
C713	22-3217	470 PFD CAPACITOR ± 20% DISC	500V
C714	22-7775-24	.1 MFD CAPACITOR ± 20% POLYESTER	100V
C715	22-7151-07A	47 MFD CAPACITOR + 100%-10% ELECT	16V
C716	22-7613-12A	.001 MFD CAPACITOR ±10 % DISC	50V
C801	22-7615-10A	47000 PFD CAPACITOR + 80%-20% DISC	50V
C802	22-7389-03	2.2 MFD CAPACITOR ± 20% ELECT	25V
C803	22-7390-05	.33 MFD CAPACITOR + 50%-10% ELECT	50V
C804	22-7615-10A	47000 PFD CAPACITOR + 80%-20% DISC	50V
C805	22-7613-09A	560 PFD CAPACITOR ± 10% DISC	50V
C806	22-7459-01	.0015 MFD CAPACITOR ± 10% TUBULAR	100V
C807	22-7440	.0047 MFD CAPACITOR ± 10% DISC	500V
C808	22-7156-03A	4.7 MFD CAPACITOR + 100%-10% ELECT	80V
C809	22-7151-04A	10 MFD CAPACITOR + 100%-10% ELECT	16V
C1001	22-5251	.15 MFD CAPACITOR ± 20% DISC	10V
C1002	22-7632-19	27 PFD CAPACITOR ± 10% DISC	50V
C1003	22-7631-02	3 PFD CAPACITOR ± .25 PFD DISC	50V
C1004	22-7151-07A	47 MFD CAPACITOR + 100%-10% ELECT	16V
C1005	22-7613-24A	10000 PFD CAPACITOR ± 10% DISC	50V
C1006	22-7639-10A	12 PFD CAPACITOR ± 5% DISC	50V
C1007	22-7625-36A	120 PFD CAPACITOR ± 5% DISC	50V
C1008	22-7153A	1 MFD CAPACITOR + 100%-10% ELECT	50V
C1009	22-7150-08A	100 MFD CAPACITOR + 100%-10% ELECT	10V
C1010			
C1011	22-7153A	1 MFD CAPACITOR + 100%-10% ELECT	50V
C1012	22-7151-11A	470 MFD CAPACITOR + 100%-10% ELECT	16V
C1013	22-7151-09A	220 MFD CAPACITOR + 100%-10% ELECT	16V
C1014			
C1015	22-7614-04B	220 PFD CAPACITOR ± 20% DISC	50V
C1016	22-7390-05	.33 MFD CAPACITOR + 50%-10% ELECT	50V
C1017	22-7151-04A	10 MFD CAPACITOR + 100%-10% ELECT	16V
R101	63-10651-16	20K OHM CONTROL HI-SCALE ADJ VHF	
R102	63-10651-16	20K OHM CONTROL HI-SCALE ADJ VHF	
R103	63-10651-20	200K OHM CONTROL HI-SCALE ADJ UHF	
R104	63-10651-16	10K OHM CONTROL HI-SCALE ADJ VHF	
R105	63-10651-15	50K OHM CONTROL LO-SCALE ADJ VHF	
R201	63-10868	100K OHM CONTROL TV TUNING	
R202	63-10873	50K OHM CONTROL VOLUME	
R301	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R302	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R303	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R304	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R401	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R402	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R403			
R404	63-10651-16	20K OHM CONTROL AGC	
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R407	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R408	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R409			
R410	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R411	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R416	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R417	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R418	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R419	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R420	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R501	63-10651-12	100K OHM CONTROL HORIZONTAL HOLD	
R502	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R504	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R505	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R506	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R507	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R508	63-10243-50	120 OHM RESISTOR 5% FILM	1/2W
RX509	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R510	63-10235-93	7.5K OHM RESISTOR 5% FILM	1/4W
RX511	63-10559-24	10 OHM RESISTOR 5% FILM	1/4W
R512	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R513	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
RX514	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
RX515	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R516			
R517	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R601	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-50	1.8 MEG OHM RESISTOR 5% FILM	1/4W
R603	63-10651-17	300K OHM CONTROL VERTICAL SIZE	
R604	63-10236-44	1 MEG OHM RESISTOR 5% FILM	1/4W
R605	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R606	63-10236-30	270K OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R609	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R610			
R611	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R612	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R613	63-10236-16	68K OHM RESISTOR 5% FILM	1/4W
R614	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R615	63-10235-10	2.7 OHM RESISTOR 5% FILM	1/4W
R616	63-10236-54	2.7MEG OHM RESISTOR 5% FILM	1/4W
R617	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R618	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R619	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R701	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R702	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R703	63-10235-66	560 OHM RESISTOR 5% FILM	1/4W
R704	63-10243-48	100 OHM RESISTOR 5% FILM	1/2W
R705	63-10235-87	4.3K OHM RESISTOR 5% FILM	1/4W
R706	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R707	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
RX708	63-10651-18	10K OHM CONTROL VOLT ADJ	
R709	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R710	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R711			
R712			
R713			
R714	63-10236-02	18K OHM RESISTOR 5% FILM	1/4W
R715	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R716	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R717	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R718	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
RX719	63-10559-16	4.7 OHM RESISTOR 5% FILM	1/4W
RX720	63-10243-70	820 OHM RESISTOR 5% FILM	1/2W
R721	63-10422-56	22 OHM RESISTOR 10% WIREBOUND	2W
RX722			
R723	63-10235-08	2.2 OHM RESISTOR 5% FILM	1/4W
R724			
RX725	63-10559-16	4.7 OHM RESISTOR 5% FILM	1/4W
R801	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R805	63-10637-07	250K OHM CONTROL CONTRAST	

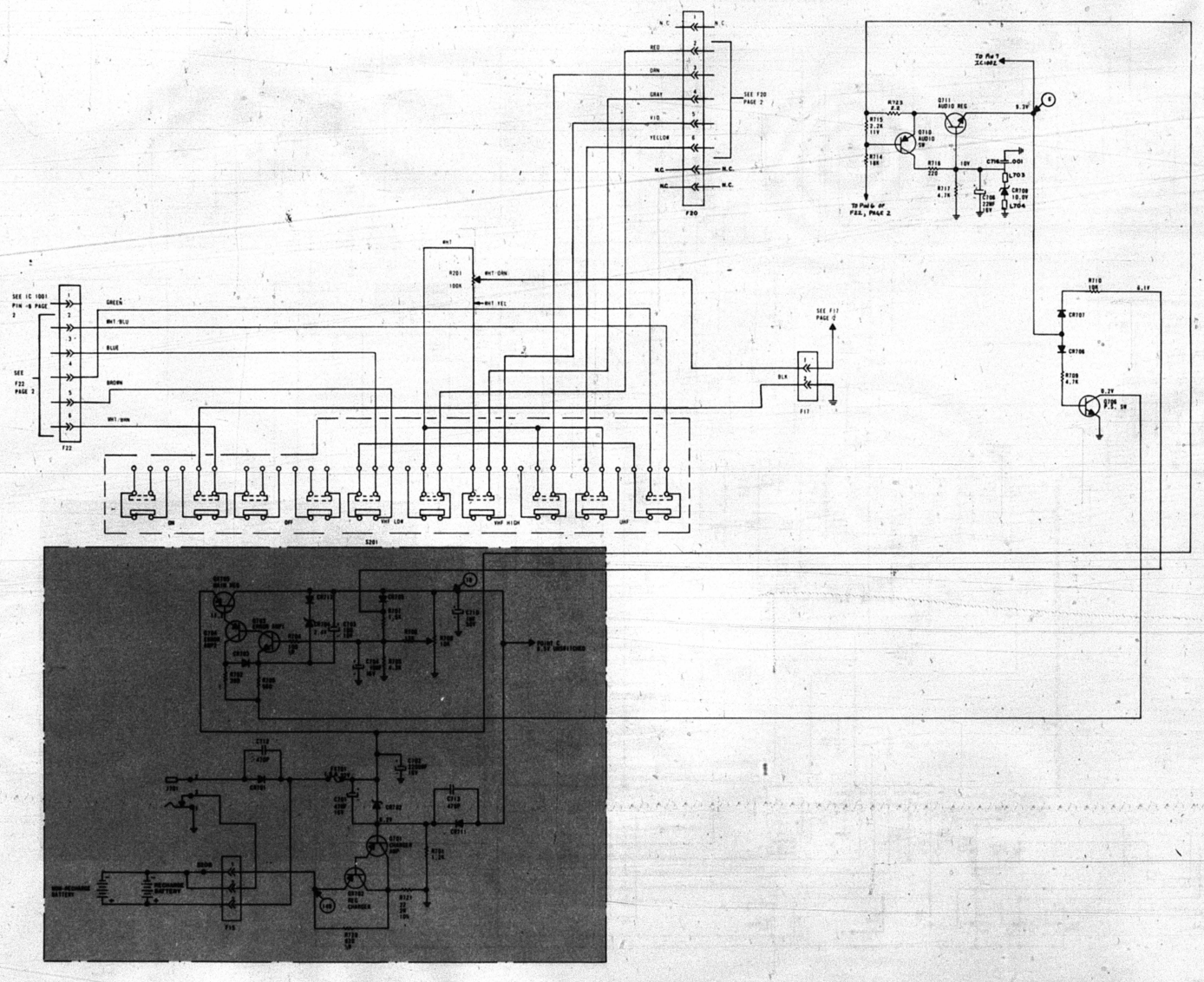
ITEM NUMBER	PART NUMBER	DESCRIPTION	
R806	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R807	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R809	63-10235-92	6.8K OHM RESISTOR 5% FILM	1/4W
R810	63-10235-68	680 OHM RESISTOR 5% FILM	1/4W
R811	63-10637-07	250K OHM CONTROL BLACK LEVEL	
R812	63-10651-17	300K OHM CONTROL BLACK LEVEL RANGE	
R813			
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R816	63-10243-96	10K OHM RESISTOR 5% FILM	1/2W
R817	63-1792	1.5K OHM RESISTOR 10% CARBON	1/2W
R818	63-10243-21	7.5 OHM RESISTOR 5% FILM	1/2W
R819	63-1834	15K OHM RESISTOR 10% CARBON	1/2W
R820	63-1848	33K OHM RESISTOR 10% CARBON	1/2W
R821	63-10651-19	3 MEG OHM CONTROL FOCUS	
R822	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1001	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1003			
R1004			
R1005	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1006	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R1007	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R1008			
R1009			
R1010	63-10235-44	68 OHM RESISTOR 5% FILM	1/4W
R1011	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R1012	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R1013	63-10243-38	39 OHM RESISTOR 5 % FILM	1/2 W
R1014	63-10243-40	47 OHM RESISTOR 5% FILM	1/2 W
L301	20-3619-03	COIL RCF TUNABLE	
L302	20-3117	COIL RCF TUNABLE	
L303	20-3619-03	COIL RCF TUNABLE	
L501	149-379	FERRITE SLEEVE	
L701	20-3907-03	COIL RCF 1.8 uH	
L702	20-3907-03	COIL RCF 1.8 uH	
L703	149-417	FERRITE CORE SLEEVE	
L704	149-417	FERRITE CORE SLEEVE	
L801	20-3405	COIL RCF TUNABLE	
L802	20-3907-03	COIL RCF 1.8 uH	
L803	20-3907-03	COIL RCF 1.8 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD	
L1002	20-3907-03	COIL RCF 1.8 uH	
E801	52-958-04	SPARK GAP	
E802	52-958-04	SPARK GAP	
E803	52-958-04	SPARK GAP	
T301	95-2909-08	TRANSFORMER RCF TUNABLE	
TX501	95-3500	SWEEP TRANSFORMER	

ITEM NUMBER	PART NUMBER	DESCRIPTION
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ INPUT
CR401	103-142-01	DIODE LOW VOLTAGE GENERAL
CR501	103-295A	DIODE LOW VOLTAGE GENERAL
CR502	103-261-04A	DIODE LOW VOLTAGE GENERAL
CR503	103-263A	DIODE LOW VOLTAGE GENERAL
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL
CR505	103-263A	DIODE LOW VOLTAGE GENERAL
CR506	103-334	DIODE ZENER 30V 250 MW.
CRX507	103-279-18A	DIODE ZENER 8.2V .5W
CR508		
CR509	103-142-01	DIODE LOW VOLTAGE GENERAL
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL
CR701	103-254	DIODE LOW VOLTAGE GENERAL
CR702	103-279-20A	DIODE ZENER 11V .5W
CR703	103-142-01	DIODE LOW VOLTAGE GENERAL
CR704	103-279A	DIODE ZENER
CR705	103-142-01	DIODE LOW VOLTAGE GENERAL
CR706	103-142-01	DIODE LOW VOLTAGE GENERAL
CR707	103-142-01	DIODE LOW VOLTAGE GENERAL
CR708	103-279-19	DIODE ZENER 10V .5W
CR709		
CR710		
CR711	103-142-01	DIODE LOW VOLTAGE GENERAL
CR712	103-142-01	DIODE LOW VOLTAGE GENERAL
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
Q401	121-975	TRANSISTOR NPN AGC INVERTOR
Q501	121-819	TRANSISTOR NPN HORIZ DRIVER
QX502	121-1028-01	TRANSISTOR NPN HORIZ OUTPUT
Q601	121-975	TRANSISTOR NPN VERT DRIVER
Q602	121-819	TRANSISTOR NPN VERT OUTPUT 1
Q603	121-973	TRANSISTOR PNP VERT OUTPUT 2
Q701	121-1021	TRANSISTOR PNP CHARGER DARLINGTON AMP
QX702	121-994	TRANSISTOR PNP REGULATOR CHARGER
Q703	121-975	TRANSISTOR NPN ERROR AMPL 1
Q704	121-1021	TRANSISTOR PNP ERROR AMPL 2
QX705	121-994	TRANSISTOR PNP MAIN REGULATOR
Q706	121-975	TRANSISTOR NPN PS ELECTRONIC SWITCH
Q707		
Q708		
Q709		
Q710	121-699	TRANSISTOR PNP AUDIO ELECTRONIC SWITCH
Q711	121-992-01	TRANSISTOR NPN AUDIO REGULATOR
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
IC301	221-201-09 ALT 221-201	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMP AND PROCESSOR
IC1001	221-48	INTEGRATED CIRCUIT SOUND
IC1002	221-202	INTEGRATED CKT GAIN BLOCK AUDIO OUTPUT

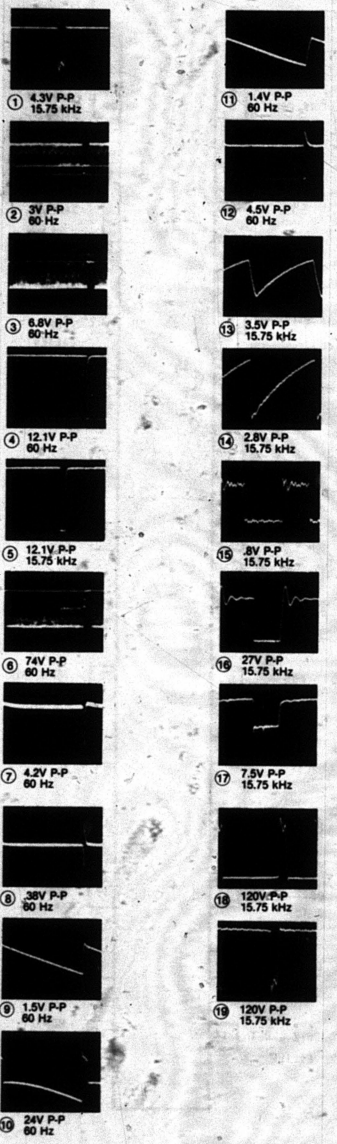
ITEM NUMBER	PART NUMBER	DESCRIPTION
FX701	138-120-01	FUSE 1.5 AMP NORMAL LAG 32V
S201	85-1581-01	SWITCH ON-OFF/ TV FUNCTION
S202	85-1603	SWITCH ANTENNA SELECTOR
S203		
S204		
S205		
S206		
S207		
S208	85-1589	SWITCH BATTERY CHARGE
J701	78-2971	BATTERY JACK
J201	78-2239	EARPHONE JACK
J202	78-2984	CRT SOCKET
TV101	175-2038	TUNER VHF-UHF VARACTOR
TX201	95-3500	BALUN COIL
T202	95-3491-01	DEFLECTION YOKE
VX201	100-709	CATHODE RAY TUBE
LS	49-1314-01	SPEAKER

SHEET 4

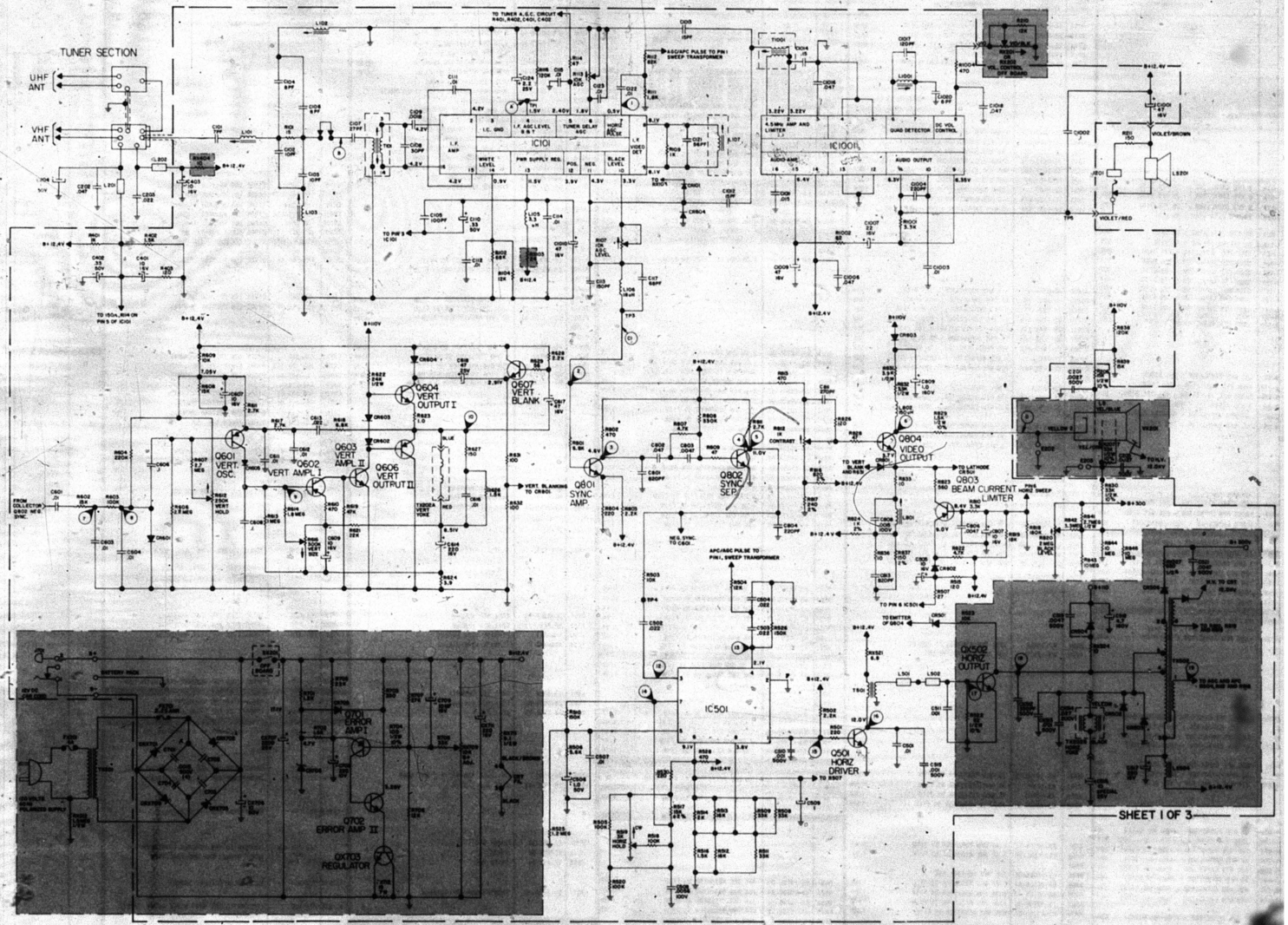
5NB5X POWER SUPPLY SCHEMATIC



9NB1X WAVEFORMS



9NB1X CHASSIS SCHEMATIC



ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7631-06A	7 PFD CAPACITOR ±.25PF DISC	50V
C102	22-7631-09A	10 PFD CAPACITOR ±.25 PF DISC	50V
C103	22-7631-09A	10PFD CAPACITOR ±.25 PF DISC	50V
C104	22-7631-07A	8 PFD CAPACITOR ±.25 PF DISC	50V
C105	22-7613A	100 PFD CAPACITOR ±10% DISC	50V
C106	22-7631-07A	8 PFD CAPACTIOR ±.25 PF DISC	50V
C107	22-7639-18A	27 PFD CAPACTIOR ±5% DISC	50V
C108	22-7639-9A	30 PFD CAPACITOR ±5% DISC	50V
C109	22-7613-15A	1800 PFD CAPACITOR ±10% DISC	50V
C110	22-7390-05	.33 MFD CAPACITOR +50% -10% ELECT	50V
C111	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C112	22-7614-24B	.01 MFD CAPACITOR ±20% DISC	50V
C113	22-7620-38A	150 PFD CAPACITOR ±10% DISC.	50V
C114	22-7614-24B	.01 MFD CAPACITOR ±20% DISC	50V
C115	22-7614-24B	.01 MFD CAPACITOR ±20% DISC	50V
C116			
C117	22-7620-30A	68 PFD CAPACITOR ±10% DISC	50V
C118			
C119			
C120			
C121	22-7622-28A	56 PFD CAPACITOR ±10% DISC	50V
C122	22-7614-24B	.01 MFD CAPACITOR ±20% DISC	50V
C123	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C124	22-7389-03	2.2MFD CAPACITOR ±20% ELECT	25V
C201	22-7763	.0027 MFD CAPACITOR ±20% DISC	500V
C202	22-6447-01	.047 MFD CAPACITOR ±20% POLYESTER	100V
C203	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C204	22-7537	1 MFD CAPACITOR ± 20% ELECT	50V
C205	22-7763	.0027 MFD CAPACITOR ± 20% DISC	500V
C401	22-7456	10 MFD CAPACITOR ±20% ELECT	16V
C402	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT.	50V
C403	22-7151-04	10 MFD CAPACITOR +100%-10% ELECT	16V
C501	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C502	22-7615-08B	.022 MFD CAPACITOR +80%-20% DISC	50V
C503	22-7615-08A	.022 MFD CAPACITOR +80%-20% DISC	50V
C504	22-7179	.022 MFD CAPACITOR ± 10% POLYESTER	50V
C505	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT.	16V
C506	22-7153A	1 MFD CAPACITOR. 100%-10% ELECT	50V
C507	22-7615-06A	.01 MFD CAPCITOR +80%-20% DISC	50V
C508	22-7739-09A	.0056 MFD CAPACITOR ±10% POLYESTER	100V
C509	22-7153A	1 MFD CAPACITOR +100% - 10% ELECT	50V
C510	22-7433	1000 PFD CAPACITOR ±20% DISC	500V
C511	22-7433	1000 PFD CAPACITOR, 20% DISC	500V
RCX512	22-3255	330 PFD CAPACITOR ± 10% DISC	500V
RCX513	22-7433	1000 PFD CAPACITOR ± 20% DISC	500V
RCX514	22-7612	.027 MFD CAPACITOR ± 5% POLYESTER	200V
C515	22-7433	.001 MFD CAPACITOR ±20% DISC.	500V
C516	22-7313	10 MFD CAPACITOR ± 20% NP. ELECT	25V
C517	22-7151-09A	220 MFD CAPACITOR + 100%-10% ELECT	16V
C518	22-7674-01	4.7MFD CAPACITOR + 100%-10% ELECT	160V
C519	22-4782	4700 PFD CAPACITOR ±20% DISC	500V
C520			
C521	22-4782	4700 PFD CAPACITOR ± 20% DISC	500V
C601	22-7613-24B	.01 MFD CAPACITOR ±10% DISC	50V
C602			
C603	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C604	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C605			
C606	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C607	22-7151-04A	10 MFD CAPACITOR, 100%-10% ELECT	16V
C608	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C609	22-7456-01	10 MFD CAPACITOR ±20% ELECT	16V
C610			
C611	22-7613-24A	.01 MFD CAPACITOR ± 10% DISC	50V
C612	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C613	22-7179	.022 MFD CAPACITOR ± 10% POLYESTER	50V
C614	22-7579-06	220 MFD CAPACITOR ±20% ELECT	16V
C615			
C616	22-7613-24A	.01 MFD CAPACITOR ± 10% DISC	50V
C617	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C618	22-7152-07A	47 MFD CAPACITOR + 100%-10% ELECT	25V
C701	22-7244	1500 PFD CAPACITOR ± 5% DISC	500V
C702	22-7244	1500 PFD CAPACITOR ± 5% DISC	500V
C703	22-7244	1500 PFD CAPACITOR ± 5% DISC	500V
C704	22-7244	1500 PFD CAPACITOR ± 5% DISC	500V
C705			
RCX706	22-7153-04A	10 MFD CAPACITOR +100%-10% ELECT	50V
RCX707	22-7152-13A	2200 MFD CAPACITOR +100%-10%ELEC	25V
C708	22-7150-09A	220 MFD CAPACITOR +100%-10%ELECT	10V
C709	22-7151-04A	10 MFD CAPACITOR +100%-10%ELECT	16V
C710			
RCX711	22-7151-09A	220 MFD CAPACITOR+100%-10%ELECT	16V
C801	22-7613-11A	820 PFD CAPACITOR ± 10% DISC	50V
C802	22-7071	.047 MFD CAPACITOR ± 10% POLYESTER	50V
C803	22-7614-20A	4700 PFD CAPACITOR ± 20% DISC	50V
C804	22-7613-04A	220 PFD CAPACITOR ±10% DISC	50V
C805			
C806	22-7614-20A	4700 PFD CAPACITOR ±20% DISC.	50V
C807	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT.	16V
C808	22-7459-01	.0015 MFD CAPACITOR ± 10% TUBULAR	100V
C809	22-7674-02	1 MFD CAPACITOR +100%-10% ELECT.	160V
C810			
C811	22-7613-05A	270 PFD CAPACITOR ± 10% DISC	50V
C812			
C813	22-7613-11A	820 PFD CAPACITOR ± 10% DISC	50V
C814	22-7763	2700 PFD CAPACITOR ± 20% DISC	500V
C815			
C816	22-7763	2700 PFD CAPACITOR ±20% DISC	500V

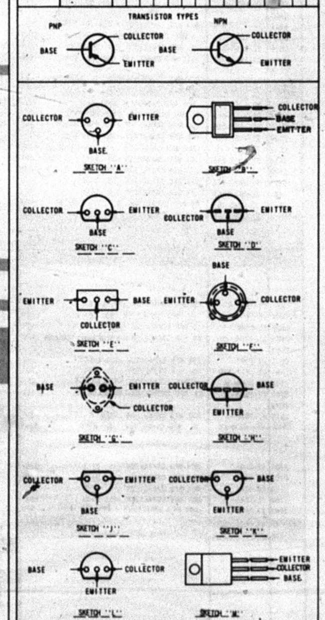
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C1001	22-7151-07A	47 MFD CAPACITOR +100%-10%ELECT	16V
C1002	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1003	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C1004	22-7613-04A	220 PFD CAPACITOR ±10% DISC	50V
C1005			
C1006	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1007	22-7151-05A	.22 MFD CAPACITOR +100%-10% ELECT	16V
C1008			
C1009	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1010	22-7151-07A	47 MFD CAPACITOR +100% -10% ELECT	16V
C1011	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50V
C1012	22-7632-13A	15 PFD CAPACITOR ±10% DISC	50V
C1013	22-7632-13A	15 PFD CAPACITOR ±10% DISC	50V
C1014	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1015			
C1016	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1017	22-7625-36A	120 PFD CAPACITOR ±5% DISC	50V
C1018	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1019			
C1020	22-7631-05A	6 PFD CAPACITOR ±.25 PF DISC	50V
R101	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R102	63-10236-16	68K OHM RESISTOR 5% FILM	1/4W
RX103	63-10559-33	24 OHM RESISTOR 5% FILM	1/4W
R104	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R105			
R106			
R107	63-10521	10K OHM AGC LEVEL CONTROL	
R108			
R109	63-10235-72	1 K OHM RESISTOR 5% FILM	1/4W
R110			
R111	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R112	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R113	63-10521	10K OHM AGC CONTROL	
R114	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R115			
R116	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
RX202	63-10920	CONTROL, ROTARY WITH SWITCH	40K
R203			
R204			
R205			
R206	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R207	63-1848	33K OHM RESISTOR 10% CARBON	1/2W
R208			
R209			
R210	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R211	63-10235-52	150 OHM RESISTOR 5% FILM (SOME MODELS)	1/4W
RX212	63-10526-01	2.2 MEG OHM RESISTOR (SPECIAL)	
R401	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R402	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R403	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
RX404	63-10559-24	10 OHM RESISTOR 5% FILM	1/4W
R501	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R502	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R504	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R505	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R506	63-10235-90	5.6K OHM RESISTOR 5% FILM	1/4W
R507	63-10235-34	27 OHM RESISTOR 5% FILM	1/4W
R508	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R509	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R510	63-10236-24	150K OHM RESISTOR 5% FILM	1/4W
R511	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
R512	63-10236-01	16K OHM RESISTOR 5% FILM	1/4W
R513	63-10236-01	16K OHM RESISTOR 5% FILM	1/4W
R514	63-10235-79	2K OHM RESISTOR 5% FILM	1/4W
R515	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R516	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R517	63-10234	15K OHM RESISTOR 2% FILM	1/4W
R518	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R519	63-9228-05	3K OHM HORIZONTAL HOLD CONTROL	
R520	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
RX521	63-10559-20	6.8 OHM RESISTOR 5% FILM	1/4W
R522	63-1740	82 OHM RESISTOR 10% CARBON	1/2W
R523	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
RX524	63-10559-24	10 OHM RESISTOR 5% FILM	1/4W
R525	63-10236-46	1.2 MEG OHM RESISTOR 5% FILM	1/4W
R526	63-10236-24	150 K OHM RESISTOR 5% FILM	1/4W
RX527	63-10565-48	100 OHM RESISTOR 5% FILM	1/2W
R528	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R529			
R530	63-10235-56	220 OHM RESISTOR 5% FILM	1/4 W
R601			
R602	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R603	63-10236-20	100K OHM RESISTOR 5% FILM	1/4W
R604	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R605			
R606	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R607	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R608	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R609	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R610	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R611	63-10235-82	2.7K OHM RESISTOR 5% FILM	1/4W
R612	63-10637-04	250K OHM VERTICAL HOLD CONTROL	
R613	63-10236-44	1 MEGOHM RESISTOR 5% FILM	1/4W
R614	63-10236-50	1.8MEG OHM RESISTOR 5% CARBON	1/4W
R615			
R616	63-10521-04	300K OHM VERTICAL SIZE CONTROL	
R617	63-10235-82	2.7K OHM RESISTOR 5% FILM	1/4W
R618	63-10235-92	6.8K OHM RESISTOR 5% FILM	1/4W
R619	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R620			
R621	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R622	63-10244-05	24K OHM RESISTOR 5% FILM	1/2W
R623	63-10235	1 OHM RESISTOR 5% FILM	1/4W
R624	63-10235-14	3.9 OHM RESISTOR 5% FILM	1/4W
R625			

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R626	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R627	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W
R628	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R629	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R630			
R631	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R632	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R701	63-10235-74	1.2 K OHM RESISTOR 5% FILM	1/4W
R702	63-10235-76	1.5 K OHM RESISTOR 5% FILM	1/4W
R703	63-10235-60	330 OHM RESISTOR 5% FILM	1/4W
R704	63-7743	100 OHM RESISTOR 10% CARBON	1/2W
R705	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R706	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R707	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R708	63-10236-08	33K OHM RESISTOR 5% FILM	1/4W
RX709	63-10817	10K OHM B+ ADJUST CONTROL	
R710			
RX711	63-7969-50	9.1 OHM RESISTOR 5% CARBON	1/2W
RX712	63-10449-52	15 OHM RESISTOR 5% WIREWOUND	7W
R801	63-10235-92	6.8K OHM RESISTOR 5% FILM	1/4W
R802	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R803	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R804	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R805			
R806			
R807	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-32	330 K OHM RESISTOR 5% FILM	1/4W
R809	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R810	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R811	63-10235-82	2.7K OHM RESISTOR 5% FILM	1/4W
R812	63-10637-05	CONTROL ROTARY CONTRAST	1 K
R813	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R814			
R815			
R816	63-10233-70	820 OHM RESISTOR 2% FILM	1/4W
R817	63-10233-57	240 OHM RESISTOR 2% FILM	1/4W
R818	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R819	63-10236-02	18K OHM RESISTOR 5% FILM	1/4W
R820	63-10637-06	CONTROL ROTARY BLACK LEVEL	2MEG
R821			
R822	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R823	63-10235-66	560 OHM RESISTOR 5% FILM	1/4W
R824	63-10233-72	1K OHM RESISTOR 2% FILM	1/4W
R825			
R826	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R827	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R828	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R829	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R830	63-7848	33K OHM RESISTOR 10% CARBON	1/2W
R831	63-10243-86	3.9K OHM RESISTOR 5% FILM	1/2W
R832	63-10243-86	3.9K OHM RESISTOR 5% FILM	1/2W
R833	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R834			
R835			
R836	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R837	63-10233-52	150 OHM RESISTOR 2% FILM	1/4W
R838	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R839	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R840			
R841	63-7928	2.7MEG OHM RESISTOR 5% CARBON	1/2W
R842	63-10182-56	3.3 MEG OHM RESISTOR 5%	1/4W
R843	63-10236-68	10 MEG OHM RESISTOR 5% FILM	1/4W
R844	63-10236-68	10 MEG OHM RESISTOR 5% FILM	1/4W
R845			
R846	63-10236-68	10 MEG OHM RESISTOR 5% FILM	1/4W
R1001	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-46	82 OHM RESISTOR 5% FILM	1/4W
R1003			
R1004	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
L101	20-3117	COIL RCF TUNABLE	
L102	20-3519-03	COIL RCF TUNABLE	
L103	20-3619-03	COIL RCF TUNABLE	
L104			
L105	20-3887-06	COIL RCF 3.3 uH	
L106	20-3887-15	COIL RCF TUNABLE 18 MH	
L107	20-3837-04	COIL RCF TUNABLE	
L201	149-333	FERRITE CORE SLEEVE	
L202	149-333	FERRITE CORE SLEEVE	
L501	149-379	FERRITE SLEEVE	
L502	149-179	FERRITE SLEEVE	
L503			
LX504	20-4032	COIL RCF PARASITIC SUPPRESSOR	
L801	20-3405	COIL RCF TUNABLE	
L802	20-3887-26C	COIL RCF 150 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD.	

ITEM NUMBER	PART NUMBER	DESCRIPTION
T101	95-2909-07	TRANSFORMER RCF TUNABLE
PTX201	95-3282-03	POWER TRANSFORMER
PTX202A	95-3438(1/2)	DEFLECTION YOKE
PTX202B	95-3438(1/2)	DEFLECTION YOKE
T501	95-3136-03	TRANSFORMER HORIZONTAL DRIVER
RTX502	95-3434A	SWEEP XFMR BLACK AND WHITE FINAL
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ INPUT
CR501	103-295-02A	DIODE LOW VOLTAGE GENERAL
CR502	103-261-02A	DIODE LOW VOLTAGE GENERAL
CR503	103-261-02A	DIODE LOW VOLTAGE GENERAL
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL
CR505		
CR506	103-261-04	DIODE LOW VOLTAGE GENERAL
CR507	103-142-01	DIODE LOW VOLTAGE GENERAL
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL
CR603	103-142-01	DIODE LOW VOLTAGE GENERAL
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL
CR605	103-142-01	DIODE LOW VOLTAGE GENERAL
CRX701	103-261-04	DIODE LOW VOLTAGE GENERAL
CRX702	103-261-04	DIODE LOW VOLTAGE GENERAL
CRX703	103-261-04	DIODE LOW VOLTAGE GENERAL
CRX704	103-261-04	DIODE LOW VOLTAGE GENERAL
CR705	103-142-01	DIODE LOW VOLTAGE GENERAL
CR706	103-279-09A	DIODE ZENER 4.7V .5W
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
CR802	103-142-01	DIODE LOW VOLTAGE GENERAL
CR803	103-261-02A	DIODE LOW VOLTAGE GENERAL
Q501	121-819	TRANSISTOR HORIZONTAL DRIVER
Q502	121-1028-01	TRANSISTOR HORIZONTAL OUTPUT
Q601	121-699	TRANSISTOR VERTICAL OSC
Q602	121-699	TRANSISTOR VERTICAL AMP 1
Q603	121-975	TRANSISTOR VERTICAL AMP 2
Q604	121-819	TRANSISTOR VERTICAL OUTPUT 1
Q605		
Q606	121-973	TRANSISTOR VERTICAL OUTPUT 2
Q607	121-819	TRANSISTOR VERTICAL BLANKER
Q701	121-699	TRANSISTOR ERROR AMP 1
Q702	121-975	TRANSISTOR ERROR AMP 2
RQX703	121-992-01	TRANSISTOR REGULATOR
Q801	121-895	TRANSISTOR SYNC AMP
Q802	121-895	TRANSISTOR SYNC SEP.
Q803	121-699-01	TRANSISTORBEAM CURRENT LIMITER
Q804	121-990	TRANSISTOR VIDEO OUTPUT
IC101	221-159	INTEGRATED CKT VIDEO IF AMP DETECTOR
IC501	221-141	INTEGRATED CKT HORIZONTAL PROCESSOR
IC1001	221-158	INTEGRATED CKT TV SOUND ONE WATT
E201		
E202	52-958-04	SPARK GAP
E203	52-958-04	SPARK GAP
E204		
E205		
E206		
RFX701	136-120-07	FUSE NORMAL LAG 2.25 AMP 32V
J701	78-2971	BATTERY JACK
RFX201	136-113-23	FUSE, 4.0 AMP
LS201	49-1259-02	SPEAKER
RVX201	100-651	CRT 9VASP4
RSX201	PART OF R202	SWITCH

BOTTOM VIEWS OF TRANSISTORS

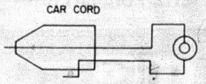
Q NUMBER	PART NUMBER	A	B	C	D	E	F	G	H	J	K	L	M
Q501	121-819			X						X			
Q502	121-1028-01												X
Q601	121-699				X					X			
Q602	121-699				X					X			
Q603	121-975				X					X			
Q604	121-819-01			X						X			
Q606	121-973			X	X								
Q607	121-819			X						X			
Q701	121-699				X					X			
Q702	121-975				X					X			
RQX703	121-992-01												X
Q801	121-895				X					X			
Q802	121-895				X					X			
Q803	121-699-01				X					X			
Q804	121-990		X										

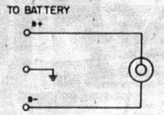


9NB1X COMPONENT LAYOUT

9NB1X FOIL PATTERN

9NB1X CAR CORD





NOTES

NOTES:

E-1. ALL VOLTAGES MEASURED FROM CHASSIS TO POINTS INDICATED.

E-2. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.

E-3. ALL VOLTAGE MEASUREMENTS TO BE MADE WITH NO SIGNAL PRESENT WITH CHANNEL SELECTOR TO CHANNEL 2.

E-4. ALL RESISTORS ARE FILM ±5 PERCENT TOLERANCE, 1/4 WATT UNLESS OTHERWISE SPECIFIED. (SEE NOTE 6).

E-5. ▶ INDICATES ±20 PERCENT TOLERANCE MAY BE USED.

E-6. RESISTANCE MEASUREMENTS SHOWN WITH COILS DISCONNECTED FROM CIRCUIT.

E-7. COIL RESISTANCES NOT SPECIFIED ARE UNDER ONE OHM.

E-8. ALL CAPACITY VALUES IN MICROFARADS UNLESS OTHERWISE SPECIFIED.

E-9. FOR CAPACITY TOLERANCES, SEE LEGEND.

E-10. ARROWS ON POTENTIOMETERS INDICATES CLOCKWISE ROTATION.

E-11. MHz = MEGAHERTZ = MEGACYCLE uH = MICROHENRY.

E-12. ⏚ INDICATES CHASSIS GROUND.

E-13. ○— INDICATES VOLTAGE SOURCE.

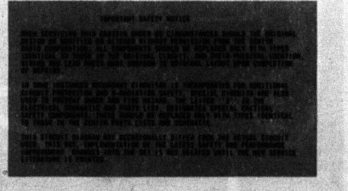
E-14. Ⓐ— INDICATES ALIGNMENT OR TEST POINT.

E-15. ⓦ INDICATES WAVEFORM.

E-16. ALL WAVEFORMS TAKEN ON AIR SIGNAL DEVELOPING 1.0 VOLTS PEAK TO PEAK ZERO AT TEST POINT "C1" AND ALL CONTROLS SET FOR NORMAL VIEWING.

E-17. TURN POWER OFF BEFORE REPLACING SEMICONDUCTORS.

E-18. ⚠ = CRITICAL CIRCUIT COMPONENT.



TEST POINTS:

C1 DETECTOR OUTPUT
A I.F. A.G.C.
B VHD I.F. ALIGNMENT

12YB1X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7631-07A	8 PFD CAPACITOR: 25PF N150 DISC	50V
C102	22-7746-21	24 PFD CAPACITOR: 5% CERAMIC TUBULAR	50V
C103			
C104	22-7746-11	8.2 PFD CAPACITOR ± 10% TUBULAR	50V
C105			
C106	22-7746-11	8.2 PFD CAPACITOR ± 10% TUBULAR	50V
C107	22-7619-22A	33PFD CAPACITOR:5 NPO DISC	50V
C108	22-7631-27A	56 PFD CAPACITOR:5 N150DISC	50V
C109	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C110			
C111	22-7615-06A	.01 MFD CAPACITOR+80%-20% DISC	50V
C112	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C113	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C114	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C201	22-6447-01	.047 MFD CAPACITOR ±20% POLYESTER	100V
C202	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C203	22-7537	1 MFD CAPACITOR±20% ELECT	50V
CX204	22-7683	39 PFD CAPACITOR ±10% DISC	2KV
C205	22-7141-04	10 MFD CAPACITOR±100%-10% ELECT	16V
CX206	22-7431-02	470 PFD CAPACITOR ± 20% DISC SPECIAL	
CX207	22-7431-02	470 PFD CAPACITOR ± 20% DISC SPECIAL	
C401			
C402			
C403	22-7742-10	1000 PFD CAPACITOR ±10% TUBULAR	50V
C404	22-7389-05	4.7 MFD CAPACITOR ± 20% ELECT	25V
C405	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C501	22-7613-16A	2200 PFD CAPACITOR ±10% DISC	50V
C502	22-7774-10	.0068 MFD CAPACITOR ±10% POLYESTER	100V
C503	22-7152-07A	47 MFD CAPACITOR +100%-10% ELECT	25V
C504	22-4905-01	.01 MFD CAPACITOR + 80%-20% DISC	500V
C505			
C506	22-7710-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	50V
C507	22-7682	.1 MFD CAPACITOR ±10% POLYESTER	200V
C508	22-4905-01	.01 MFD CAPACITOR +80%-20% DISC	500V
C509	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C510			
CX511	22-7318	200 PFD CAPACITOR ± 10% DISC	2KV
CX512	22-7318	200 PFD CAPACITOR ± 10% DISC	2KV
C513	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C514	22-7152-04A	10 MFD CAPACITOR +100%-10% ELECT	25V
C515	22-7152-08A	100 MFD CAPACITOR +100%-10% ELECT	25V
C516	22-7152-08A	100 MFD CAPACITOR +100%-10% ELECT	25V
C517	22-7774-16	.022 MFD CAPACITOR ±10% POLYESTER	100V
C518	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C519	22-7390-02	.47 MFD CAPACITOR ±20% ELECT	50V
C520	22-7613-05A	270 PFD CAPACITOR ±10% DISC	50V
C521	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C522	22-7743-32	68 PFD CAPACITOR ±5% TUBULAR	50V
CX523	22-6830	390 PFD CAPACITOR ± 10% DISC (FOR 95-3448A OR 95-3448)	2KV
OR	OR		
CX523	22-6830	390 PFD CAPACITOR ± 10% DISC (FOR 95-3564A OR 95-3564)	2KV
C601	22-7456-01	10 MFD CAPACITOR ±20% ELECT	16V
C602	22-7615-08A	.01 MFD CAPACITOR +80%-20% DISC	50V
C603	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C604	22-7746-26	39 PFD CAPACITOR ± 5% CERAMIC TUBULAR	50V
C605			
C606	22-7887	220 MFD CAPACITOR ±20% ELECT	16V
C607	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C608	22-7860-08	47 MFD CAPACITOR ±20% ELECT	25V
C609	22-7859-07	33 MFD CAPACITOR ±20% ELECT	16V
C610			
C611	22-7860-11	330 MFD CAPACITOR ± 20% ELECT	25V
C612	22-4905-01	.01 MFD CAPACITOR + 80-20%	500V
C701	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C702	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C703	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C704	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C705	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
CX706	22-7678	100 MFD CAPACITOR +100%-10% ELECT	160V
CX707	22-7678	100 MFD CAPACITOR +100%-10% ELECT	[illegible]

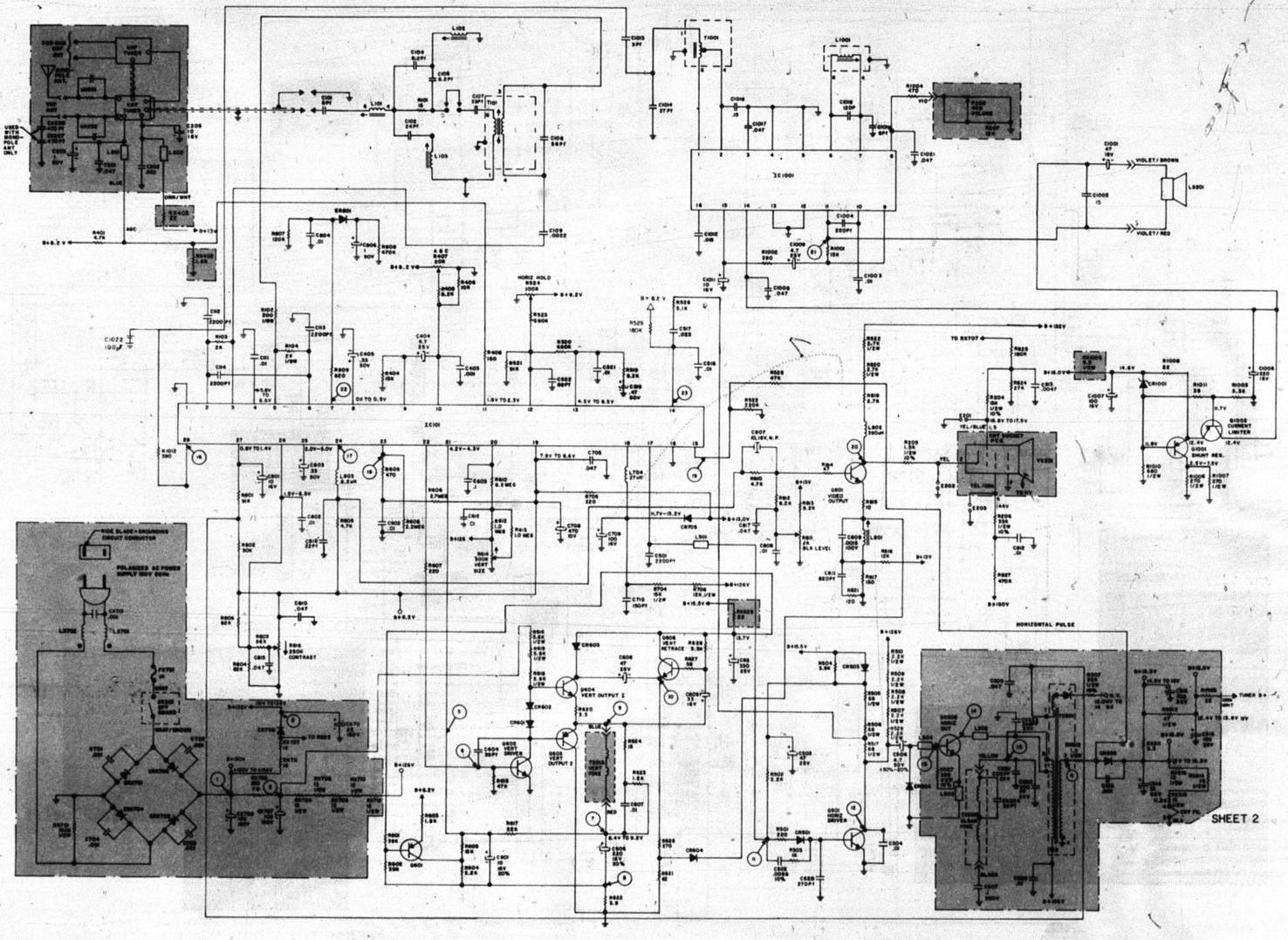
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C708	22-7150-11A	470 MFD CAPACITOR +100%-10% ELECT	10V
C709	22-7859-09	100 MFD CAPACITOR ±20% ELECT	16V
C710	22-7751-38	150 PFD CAPACITOR ± 5% TUBULAR	50V
CX711	22-7674-03	22 MFD CAPACITOR +100%-10% ELECT	160V
C712			
C801	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C802	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C803	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C804	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C805			
C806	22-7153A	1MFD CAPACITOR +100%-10% ELECT	50V
C807	22-7404-05	10 MFD CAPACITOR ±20% NP ELECT.	16V
C808	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C809	22-7459-01	1500 PFD CAPACITOR ±10% TUBULAR	100V
C810	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
C811	22-7742-09	820 PFD CAPACITOR ±10% TUBULAR	50V
C812	22-4905-01	.01 MFD CAPACITOR +80%-20% DISC	500V
C813	22-7440	4700 PFD CAPACITOR ±10% DISC	500V
C814			
C815	22-7615-10A	.047 MFD CAPACITOR + 80% - 20% DISC	50V
C816	22-7639-16A	22 PFD CAPACITOR ± 5% DISC	50V
C817	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1001	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1002	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1003	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C1004	22-7742-02	220 PFD CAPACITOR ±10% DISC	50V
C1005			
C1006	22-7151-09A	220 MFD CAPACITOR +100%-10% ELECT	16V
C1007	22-7859-09	100 MFD CAPACITOR ±20% ELECT	16V
C1008	22-7615-10A	.047 MFD CAPACITOR +80%-10% DISC	50V
C1009	22-7860-04	4.7 MFD CAPACITOR ± 20% ELECT	25V
C1010			
C1011	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C1012	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50V
C1013	22-7631-02A	3 PFD CAPACITOR ± 25PF N150 DISC	50V
C1014	22-7746-22	27 PFD CAPACITOR ±5% DISC	50V
C1015			
C1016	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1017	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1018	22-7625-36A	120 PFD CAPACITOR ±5% N30 DISC	50V
C1019	22-7631-05A	6 PFD CAPACITOR ± 25 PF N150 DISC	50V
C1020			
C1021	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1022	022-07613	100 PFD CAPACITOR ±10% DISC	50V
R101	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R102	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R103	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R104	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R105			
R201			
RX202	63-10920	40K OHM CONTROL VOLUME WITH SWITCH	
R203			
R204	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R205	63-7792	1.5K OHM RESISTOR 10 CARBON	1/2W
R206	63-7848	33K OHM RESISTOR 10 CARBON	1/2W
R207	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R401	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
RX402	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
RX403	63-10550-32	22 OHM RESISTOR 5% FILM	1/4W
R404	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R407	63-10651-16	20K OHM CONTROL AGC	
R408	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R501	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R502	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R504	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R505	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R506	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R507	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R508	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R509	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R510	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
RX511	63-10550-12	3.3 OHM RESISTOR 5% FILM	1/4W
RX512	63-10565	1.0 OHM RESISTOR 5% FILM	1/2W
RX513	63-10565-40	47 OHM RESISTOR 5% FILM	1/2W
RX514	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
RX515	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
RX516	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
R517	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R519	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R520	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R521	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R522	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R523	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R524	63-9228-06	100K OHM CONTROL HORIZONTAL HOLD	
R525	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R526	63-10235-89	5.1K OHM RESISTOR 5% FILM	1/4W
R527	63-7764	330 OHM RESISTOR 10% CARBON	1/2W
R528	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R601	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R603	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R604	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R605	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R606	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R609	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R610	63-10925	8.2 MEG OHM RESISTOR 5% FILM	1/4W
R611			
R612	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R613	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R614	63-10521-04	300K OHM CONTROL VERTICAL SIZE	
R615	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R616	63-10243-90	5.6K OHM RESISTOR 5% FILM	1/2W
R617	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R618	63-10243-90	5.6K OHM RESISTOR 5% FILM	1/2W
R619	63-10243-90	5.6K OHM RESISTOR 5% FILM	1/2W
R620	63-10235-12	3.3 OHM RESISTOR 5% FILM	1/4W
R621	63-10235-46	82 OHM RESISTOR 5% FILM	1/4W
R622	63-10235-14	3.9 OHM RESISTOR 5% FILM	1/4W
R623	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R624	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R625	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R626			
R627	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R628	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
RX629	63-10550-32	22 OHM RESISTOR 5% FAILSAFE	1/4W
R610			
RX701	63-10244-28	100K OHM RESISTOR 5% FILM	1/2W
RX702	63-10918	100 OHM RESISTOR 5% WIREWOUND	3W
RX703	63-10565-30	18 OHM RESISTOR 5% FILM	1/2W
R704	63-10244	15K OHM RESISTOR 5% FILM	1/2W
R705	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R706	63-10243-98	12K OHM RESISTOR 5% FILM	1/2W
RX707	63-10550-72	1K OHM RESISTOR 5% FAILSAFE	1/4W
RX708	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX709	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX710	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX711	63-10550-72	1K OHM RESISTOR 5% FILM	1/4W
RX712	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
R801	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-07	30K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R805	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R806	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R807	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R809	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W
R810	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R811	63-10521-07	2K OHM CONTROL BLACK LEVEL	
R812	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R813	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R816	63-10521-06	250K OHM CONTROL CONTRAST	
R817	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W
R818	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R819	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R820	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R821	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R822	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R823			
R824	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R825	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R826			
R827	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R1001	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R1003			
R1004	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1005	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1006	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1007	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1008	63-10235-32	22 OHM RESISTOR 5% FILM	1/4W
RX1009	63-10565-22	8.2 OHM RESISTOR 5% FILM	1/2W
R1010	63-10243-68	680 OHM RESISTOR 5% FILM	1/2W
R1011	63-10235-38	39 OHM RESISTOR 5% FILM	1/4W
R1012	63-10236-62	390 OHM RESISTOR 5% FILM	1/4W
L101	20-3117	COIL RCF, TUNABLE	
L102	20-3619-03	COIL RCF, TUNABLE	
L103	20-3619-03	COIL RCF, TUNABLE	
L201	149-333	FERRITE CORE SLEEVE	
L202	149-333	FERRITE CORE SLEEVE	
L501	149-509	FERRITE CORE SLEEVE	
L502	149-379	FERRITE CORE SLEEVE	
L503	149-509	FERRITE CORE SLEEVE	
L504	149-509	FERRITE CORE SLEEVE	
LX701	20-3866-04	COIL CHOKE	
LX702	20-3866-04	COIL CHOKE	
L703			
L704	20-2834	COIL RCF 27 uH	
L801	20-3405	COIL RCF TUNABLE	
L802	20-2806	COIL RCF 390 uH	
L803	20-3907-11A	COIL RCF 8.2 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD	
CR501	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR502			
CR503	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL	
CR505	103-263A	DIODE LOW VOLTAGE GENERAL	
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR602	102-142-01	DIODE LOW VOLTAGE GENERAL	
CR603	103-261-02	DIODE LOW VOLTAGE GENERAL	
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL	
CRX701	103-261-04	DIODE LOW VOLTAGE GENERAL	
CRX702	103-261-04	DIODE LOW VOLTAGE GENERAL	
CRX703	103-261-04	DIODE LOW VOLTAGE GENERAL	
CRX704	103-261-04	DIODE LOW VOLTAGE GENERAL	
CR705	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR706	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR802			
CR1001	103-279A	DIODE ZENER	
CR1002			
Q501	121-819	TRANSISTOR NPN HORIZONTAL DRIVER	
QX502	121-885	TRANSISTOR NPN HORIZONTAL OUTPUT	

ITEM NUMBER	PART NUMBER	DESCRIPTION
Q601	121-699	TRANSISTOR PNP VERTICAL BIAS
Q602	121-975	TRANSISTOR NPN VERTICAL DRIVER
Q603	121-973	TRANSISTOR PNP VERTICAL OUTPUT 2
Q604	121-819	TRANSISTOR NPN VERTICAL OUTPUT 1
Q605		
Q606	121-819-01	TRANSISTOR NPN VERTICAL RETRACE
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
Q1001	121-765-01	TRANSISTOR PNP SHUNT REGULATOR
Q1002	121-765-01	TRANSISTOR PNP CURRENT LIMITER
IC101	221-201-03 ALT. 221-201	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMPL AND PROCESSOR
IC1001	221-158	INTEGRATED CKT TV SOUND, ONE WATT
E201	52-958-04	SPARK GAP
E202	52-958-04	SPARK GAP
E203	52-958-04	SPARK GAP
FX201	136-113-15	FUSE NORMAL LAG 1 AMP 125V
LS201	49-1323	SPEAKER
SX201		SWITCH PART OF RX202
UX201	105-148	ANT. ISOLATION
UX202	105-148	ANT. ISOLATION
VX201	100-640	12VCBP4 (12VCAP4)
T101	95-2909-08	TRANSFORMER RCF TUNABLE
TX201A	95-3335-04	TRANSFORMER DEFLECTION YOKE VERT.
TX201B		TRANSFORMER DEFLECTION YOKE HORIZ.
TX501	95-3564A	TRANSFORMER SWEEP (SEE CX523)
ALT.	95-3564	
ALT.	95-3448A	
ALT.	95-3448	
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ

12YB1X CHASSIS SCHEMATIC



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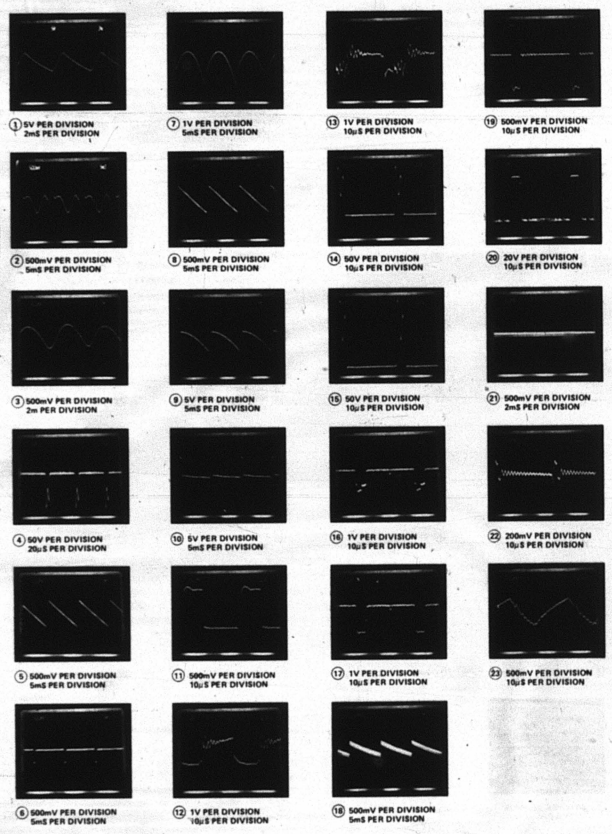

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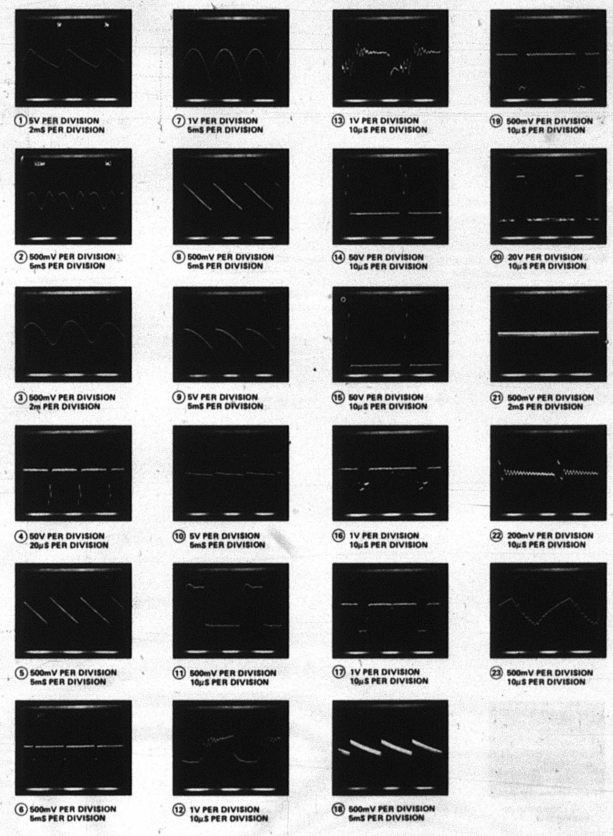

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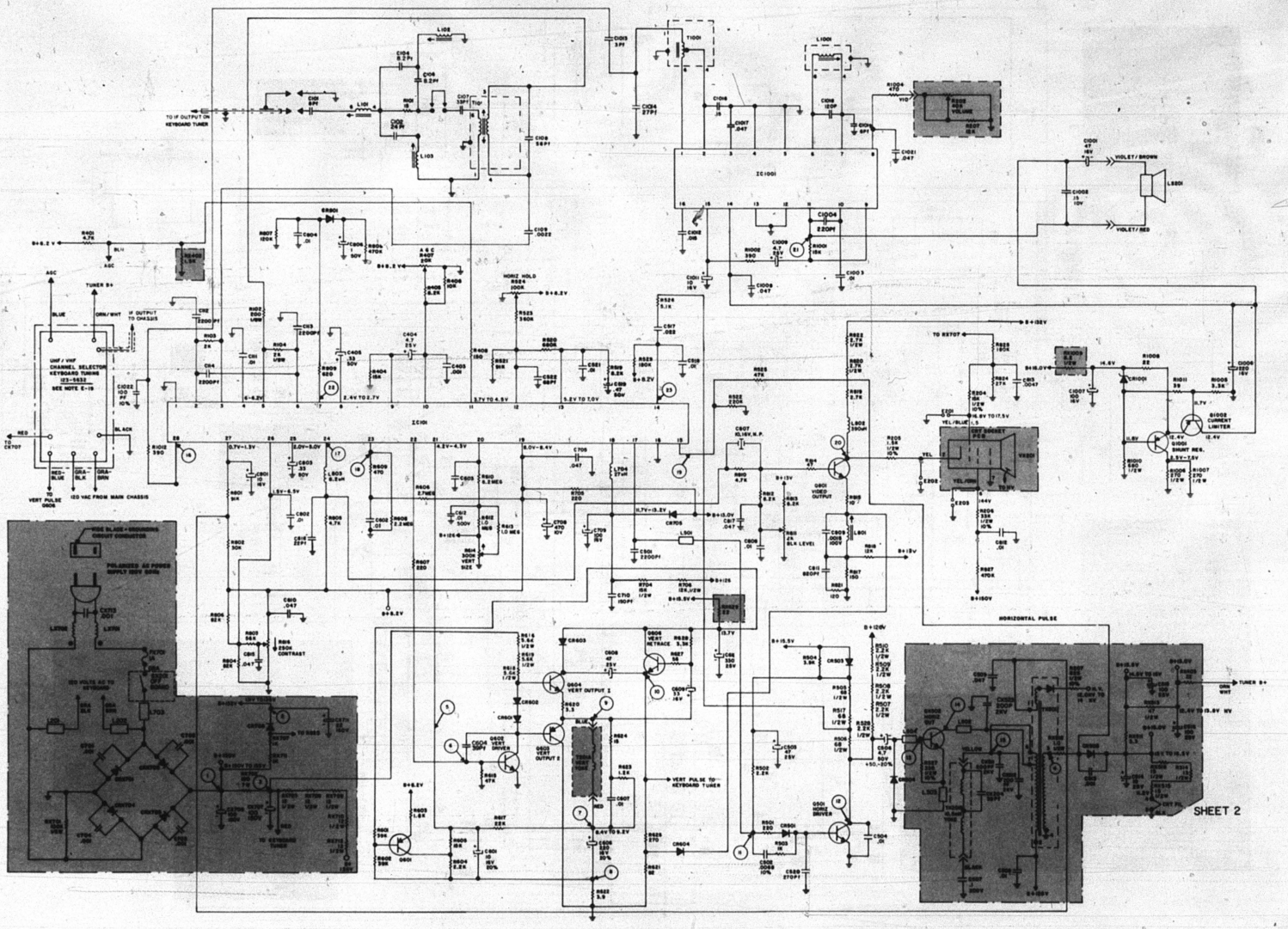


G-13

G-14

12YB3X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7631-07A	8 PFD CAPACITOR: 25PF N150 DISC	50V
C102	22-7746-21	24 PFD CAPACITOR ±5% TUBULAR	50V
C103			
C104	22-7746-11	8.2PFD CAPACITOR: 25PF N150 DISC	50V
C105			
C106	22-7746-11	8.2PFD CAPACITOR: 25PF N150 DISC	50V
C107	22-7619-22A	33PFD CAPACITOR ±5 NPO DISC	50V
C108	22-7631-27A	56 PFD CAPACITOR ±5 N150 DISC	50V
C109	22-7614-16A	2200PFD CAPACITOR ± 20% Z5T DISC	50V
C110			
C111	22-7615-06A	.01 MFD CAPACITOR + 80%-20% DISC	50V
C112	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C113	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C114	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
CX204	22-7693	39 PFD CAPACITOR ±10 DISC	2KV
C401			
C402			
C403	22-7742-10	1000 PFD CAPACITOR ±10% DISC TUBULAR	50V
C404	22-7389-05	4.7 MFD CAPACITOR ± 20% ELECT	25V
C405	22-7390-05	33 MFD CAPACITOR +50%-10% ELECT	50V
C501	22-7613-16A	2200 PFD CAPACITOR ±10 DISC	50V
C502	22-7774-10	.0068 MFD CAPACITOR ±10% POLYESTER	100V
C503	22-7152-07A	47 MFD CAPACITOR +100-10 ELECT	25V
C504	22-4905-01	.01 MFD CAPACITOR + 80%-20% DISC	500V
C505			
C506	22-7710-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	50V
C507	22-7682	.1 MFD CAPACITOR ±10% POLYESTER	200V
C508	22-4905-01	.01 MFD CAPACITOR +80-20 DISC	500V
C509	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C510			
CX511	22-7319	200 PFD CAPACITOR ± 10% DISC	2KV
CX512	22-7319	200 PFD CAPACITOR ± 10% DISC	2KV
C513	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C514	22-7152-04A	10 MFD CAPACITOR +100%-10 ELECT	25V
C515	22-7152-08A	100 MFD CAPACITOR +100-10 ELECT	25V
C516	22-7152-08A	100 MFD CAPACITOR +100-10 ELECT	25V
C517	22-7774-16	.022 MFD CAPACITOR ±10 POLYESTER	100V
C518	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C519	22-7390-02	.47 MFD CAPACITOR ±20 ELECT	50V
C520	22-7613-05A	270 PFD CAPACITOR ±10 DISC	50V
C521	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C522	22-7743-32	68 PFD CAPACITOR ±5 TUBULAR	50V
CX523	22-7319	200 PFD CAPACITOR ± 10% DISC	2KV
C601	22-7456-01	10 MFD CAPACITOR ±20 ELECT	16V
C602	22-7615-06A	.01 MFD CAPACITOR +80-20 DISC	50V
C603	22-7547	.1 MFD CAPACITOR ±10 POLYESTER	50V
C604	22-7746-26	39 PFD CAPACITOR ±5% TUBULAR	50V
C605			
C606	22-7887	220 MFD CAPACITOR ±20 ELECT	16V
C607	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C608	22-7860-08	47 MFD CAPACITOR ± 20% ELECT	25V
C609	22-7859-07	33 MFD CAPACITOR ± 20% ELECT	16V
C610			
C611	22-7860-11	330 MFD CAPACITOR ±20% ELECT	25V
C612	22-4905-01	.01 MFD CAPACITOR + 80-20% DISC	500V
C701	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C702	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C703	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C704	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C705	22-7615-10A	.047 MFD CAPACITOR + 80-20% DISC	50V
CX706	22-7678	100 MFD CAPACITOR +100-10 ELECT	160V
CX707	22-7678	100 MFD CAPACITOR +100%-10% ELECT	160V

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C708	22-7150-11A	470 MFD CAPACITOR +100-10 ELECT	10V
C709	22-7859-09	100 MFD CAPACITOR ± 20% ELECT	16V
C710	22-7751-38	150 PFD CAPACITOR ±5% TUBULAR	50V
CX711	22-7674-03	22 MFD CAPACITOR +100%-10% ELECT	100V
C712			
CX713	22-7431-04	.001 MFD CAPACITOR ±20% - 20% DISC	
C801	22-7151-04A	10 MFD CAPACITOR +100-10 ELECT	16V
C802	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C803	22-7390-05	33 MFD CAPACITOR +50-10 ELECT	50V
C804	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C805			
C806	22-7153A	1MFD CAPACITOR +100-10 ELECT	50V
C807	22-7404-05	10 MFD CAPACITOR ±20% NP ELECT	16V
C808	22-7614-24A	.01 MFD CAPACITOR ±20 DISC	50V
C809	22-7459-01	1500 PFD CAPACITOR ±10 TUBULAR	100V
C810	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
C811	22-7742-09	820 PFD CAPACITOR ±10 TUBULAR	50V
C812	22-4905-01	.01 MFD CAPACITOR +80%-20% DISC	500V
C813	22-7440	4700 PFD CAPACITOR ±10 DISC	500V
C814			
C815	22-7615-10A	.047 MFD CAPACITOR + 80% - 20% DISC	50V
C816	22-7639-16A	22 PFD CAPACITOR ± 5% DISC	50V
C817	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1001	22-7151-07A	47 MFD CAPACITOR +100-10 ELECT	16V
C1002	22-5231	.15 MFD CAPACITOR ±20% DISC	0V
C1003	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C1004	22-7742-02	220 PFD CAPACITOR ±10% TUBULAR	50V
C1005			
C1006	22-7151-09A	220 MFD CAPACITOR +100-10 ELECT	16V
C1007	22-7859-09	100 MFD CAPACITOR ± 20% ELECT	16V
C1008	22-7615-10A	.047 MFD CAPACITOR +80-10 DISC	50V
C1009	22-7860-04	4.7 MFD CAPACITOR ± 20% ELECT	25V
C1010			
C1011	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C1012	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50V
C1013	22-7631-02A	3 PFD CAPACITOR ± 25PF N150 DISC	50V
C1014	22-7746-22	27 PFD CAPACITOR ±5 TUBULAR	50V
C1015			
C1016	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1017	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1018	22-7625-36A	120 PFD CAPACITOR ±5 N30 DISC	50V
C1019	22-7631-05A	6 PFD CAPACITOR ± 25 PF N150 DISC	50V
C1020			
C1021	22-7615-10A	.047 MFD CAPACITOR +80-20 DISC	50V
C1022	22-7613	100 PFD CAPACITOR ±10% DISC	50V
R101	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R102	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R103	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R104	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R105			
R201			
RX202	63-10928	40K OHM CONTROL VOLUME WITH SWITCH	
R203			
R204	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R205	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R206	63-7848	33K OHM RESISTOR 10% CARBON	1/2W
R207	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R401	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
RX402	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4W
R404	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R407	63-10651-16	20K OHM CONTROL AGC	
R408	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R501	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R502	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R504	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R505	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R506	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R507	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R508	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R509	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
R510	63-10243-80	2.2K OHM RESISTOR 5% FILM	1/2W
RX511	63-10559-12	3.3 OHM RESISTOR 5% FILM	1/4W
RX512	63-10565	1.0 OHM RESISTOR 5% FILM	1/2W
RX513	63-10565-40	47 OHM RESISTOR 5% FILM	1/2W
RX514	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
RX515	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
RX516	63-10565-28	15 OHM RESISTOR 5% FILM	1/2W
R517	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R518			1/4W
R519	63-10236-94	8.2K OHM RESISTOR 5% FILM	1/4W
R520	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R521	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R522	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R523	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R524	63-9228-06	100K OHM CONTROL HORIZONTAL HOLD	
R525	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R526	63-10235-89	5.1K OHM RESISTOR 5% FILM	1/4W
R527	63-7764	330 OHM RESISTOR 10% CARBON	1/2W
R528	63-10243-80	2.2 K OHM RESISTOR 5% FILM	1/2W
R529	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R601	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R603	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R604	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R605	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R606	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R609	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R610	63-10925	8.2 MEG OHM RESISTOR 5% FILM	1/4W
R611			
R612	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R613	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R614	63-10521-04	300K OHM CONTROL VERTICAL SIZE	
R615	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R616	63-10243-90	5.6 OHM RESISTOR 5% FILM	1/2W
R617	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R618	63-10243-90	5.6 OHM RESISTOR 5% FILM	1/2W
R619	63-1024-90	5.6 OHM RESISTOR 5% FILM	1/2W
R620	63-10235-12	3.3 OHM RESISTOR 5% FILM	1/4W
R621	63-10235-46	82 OHM RESISTOR 5% FILM	1/4W
R622	63-10235-14	3.9 OHM RESISTOR 5% FILM	1/4W
R623	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R624	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R625	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R626			
R627	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R628	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
RX629	63-10559-32	22 OHM RESISTOR 5% FAILSAFE	1/4W
R610			
RX701	63-10244-20	100K OHM RESISTOR 5% FILM	1/2W
RX702	63-10918	100 OHM RESISTOR 5% WIREWOUND	7W
RX703	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
R704	63-10244	15K OHM RESISTOR 5% FILM	1/2W
R705	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R706	63-10243-98	12K OHM RESISTOR 5% FILM	1/2W
RX707	[illegible]	1K OHM RESISTOR 5% FILM	[illegible]
RX708	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX709	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX710	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
RX711	63-10559-72	1K OHM RESISTOR 5% FILM	1/4W
RX712	63-10565-26	12 OHM RESISTOR 5% FILM	1/2W
R801	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-07	30K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-16	82K OHM RESISTOR 5% FILM	1/4W
R805	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R806	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R807	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R809	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W
R810	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R811	63-10521-07	2K OHM CONTROL BLACK LEVEL	
R812	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R813	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R816	63-10521-08	250K OHM CONTROL CONTRAST	
R817	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W
R818	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R819	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R820	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R821	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R822	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R823			
R824	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R825	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R826			
R827	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R1001	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R1003			
R1004	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1005	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1006	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1007	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1008	63-10235-32	22 OHM RESISTOR 5% FILM	1/4W
RX1009	63-10565-22	8.2 OHM RESISTOR 5% FILM	1/2W
R1010	63-10243-68	680 OHM RESISTOR 5% FILM	1/2W
R1011	63-10235-38	39 OHM RESISTOR 5% FILM	1/4W
R1012	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
L101	20-3117	COIL RCF. TUNABLE	
L102	20-3619-03	COIL RCF. TUNABLE	
L103	20-3619-03	COIL RCF. TUNABLE	
L201			
L202			
L501	149-509	FERRITE CORE SLEEVE	
L502	149-379	FERRITE CORE SLEEVE	
L503	149-509	FERRITE CORE SLEEVE	
L504	149-509	FERRITE CORE SLEEVE	
LX701	20-3888-04	COIL CHOKE	
LX702	20-3888-04	COIL CHOKE	
L703	149-379	FERRITE CORE SLEEVE	
L704	20-2834	COIL RCF 27 uH	
L801	20-3405	COIL RCF TUNABLE	
L802	20-2806	COIL RCF 390 uH	
L803	20-3907-11A	COIL RCF 8.2 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD	
L1002			
T101	95-2909-08	TRANSFORMER RCF TUNABLE	
TX201	95-3335-04	TRANSFORMER DEFLECTION YOKE VERT.	
TX201	95-3335-04	TRANSFORMER DEFLECTION YOKE HORIZ	
TX202			
TX501	95-3564A	TRANSFORMER SWEEP (ALT. 95-3564)	
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ	
CR501	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR502			
CR503	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL	
CR505	103-263A	DIODE LOW VOLTAGE GENERAL	
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR602	102-142-01	DIODE LOW VOLTAGE GENERAL	
CR603	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL	
CRX701	103-261-04A	DIODE LOW VOLTAGE GENERAL	
CRX702	103-261-04A	DIODE LOW VOLTAGE GENERAL	
CRX703	103-261-04A	DIODE LOW VOLTAGE GENERAL	
CRX704	103-261-04A	DIODE LOW VOLTAGE GENERAL	
CR705	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR706	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR802			
CR1001	103-279A	DIODE ZENER	2.4V-0.5W
CR1002			
Q501	121-819	TRANSISTOR NPN HORIZONTAL DRIVER	
QX502	121-985	TRANSISTOR NPN HORIZONTAL OUTPUT	

ITEM NUMBER	PART NUMBER	DESCRIPTION
Q601	121-699	TRANSISTOR PNP VERTICAL BIAS
Q602	121-975	TRANSISTOR NPN VERTICAL DRIVER
Q603	121-973	TRANSISTOR PNP VERTICAL OUTPUT 2
Q604	121-819	TRANSISTOR NPN VERTICAL OUTPUT 1
Q605		
Q606	121-819-01	TRANSISTOR NPN VERTICAL RETRACE
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
Q1001	121-765-01	TRANSISTOR PNP SHUNT REGULATOR
Q1002	121-765-01	TRANSISTOR PNP CURRENT LIMITER
IC101	221-201-03	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMPL AND PROCESSOR
IC1001	221-158	INTEGRATED CKT TV SOUND, ONE WATT
E201	52-958-04	SPARK GAP
E202	52-958-04	SPARK GAP
E203	52-958-04	SPARK GAP
FX701	136-113-15	FUSE NORMAL LAG 1 AMP 125V
LS201	1323	SPEAKER
SX201		SMITH PART OF RX202
VX201	100-848	12YCBP4 (12VCAP4)

SEMICONDUCTOR OUTLINE

BOTTOM VIEWS OF TRANSISTORS

Q NUMBER	PART NUMBER	SKETCHES A	B	C	D	E	F	G	H	J	K	L	M
Q501	121-819	X	X										
Q502	121-980								X				
Q601	121-689				X					X			
Q602	121-975			X	X								
Q603	121-973			X						X			
Q604	121-819			X	X								
Q605													
Q606	121-819-09			X	X								
Q607													
Q801	121-980	X											
Q1001	121-765-01	X	X										
Q1002	121-765-01	X	X										

TRANSISTOR TYPES

PNP

BASE — COLLECTOR — EMITTER

BASE — COLLECTOR — EMITTER

SKETCH A

SKETCH B

SKETCH C

SKETCH D

SKETCH E

SKETCH F

SKETCH G

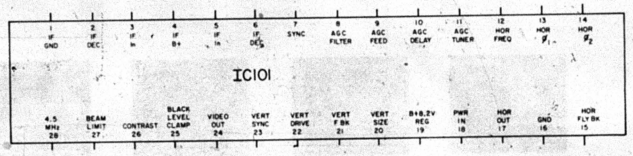
SKETCH H

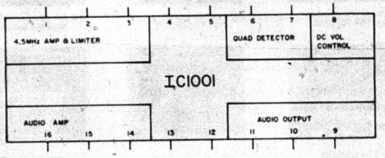
SKETCH J

SKETCH K

SKETCH L

SKETCH M





12YB4X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7631-07A	8 PFD CAPACITOR: 25PF N150 DISC	50V
C102	22-7746-21	24 PFD CAPACITOR: 5% TUBULAR	50V
C103			
C104	22-7746-11	8.2 PFD CAPACITOR ± 10% TUBULAR	50V
C105			
C106	22-7746-11	8.2 PFD CAPACITOR ± 10% TUBULAR	50V
C107	22-7619-22A	33PFD CAPACITOR±5% NPO DISC	50V
C108	22-7631-27A	56 PFD CAPACITOR±5% N150 DISC	50V
C109	22-7614-16B	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C110			
C111	22-7615-08A	.01 MFD CAPACITOR+80%-20% DISC	50V
C112	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C113	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C114	22-7614-16	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C201	22-6447-01	.047 MFD CAPACITOR ±20% POLYESTER	100V
C202	22-7615-08	.022 MFD CAPACITOR +80%-20% DISC	50V
C203	22-7537	1 MFD CAPACITOR±20% ELECT	50V
[redacted]			
C205	22-7141-04	10 MFD CAPACITOR±100%-10% ELECT	16V
[redacted]			
C401			
C402			
C403	22-7742-10	1000 PFD CAPACITOR ±10% TUBULAR	50V
C404	22-7389-05	4.7 MFD CAPACITOR ± 20% ELECT	25V
C405	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C501	22-7613-16A	2200 PFD CAPACITOR ±10% DISC	50V
C502	22-7774-10	.0068 MFD CAPACITOR ±10% POLYESTER	100V
C503	22-7152-07A	47 MFD CAPACITOR +100%-10% ELECT	25V
C504	22-4905-01	.01 MFD CAPACITOR + 80%-20% DISC	500V
C505			
C506	22-7710-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	50V
C507	22-7882	.1 MFD CAPACITOR ±10% POLYESTER	200V
C508	22-4905-01	.01 MFD CAPACITOR +80%-20% DISC	500V
C509	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C510			
[redacted]			
C513	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C514	22-7152-04A	10 MFD CAPACITOR +100%-10% ELECT	25V
C515	22-7152-08A	100 MFD CAPACITOR +100%-10% ELECT	25V
C516	22-7152-08A	100 MFD CAPACITOR +100%-10% ELECT	25V
C517	22-7774-16	.022 MFD CAPACITOR ±10% POLYESTER	100V
C518	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C519	22-7390-02	.47 MFD CAPACITOR ±20% ELECT	50V
C520	22-7613-05A	270 PFD CAPACITOR ±10% DISC	50V
C521	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C522	22-7743-32	68 PFD CAPACITOR ±5% TUBULAR	50V
[redacted]			
C601	22-7456-01	10 MFD CAPACITOR ±20% ELECT	16V
C602	22-7615-08A	.01 MFD CAPACITOR +80%-20% DISC	50V
C603	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C604	22-7748-26	39 PFD CAPACITOR ± 5% TUBULAR	50V
C605			
C606	22-7887	220 MFD CAPACITOR ±20% ELECT	16V
C607	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C608	22-7860-08	47 MFD CAPACITOR ±20% ELECT	25V
C609	22-7859-07	33 MFD CAPACITOR ±20% ELECT	16V
C610			
C611	22-7860-11	330 MFD CAPACITOR ±20% ELECT	25V
C612	22-4905-01	.01 MFD CAPACITOR +80% -20% DISC	500V
C701	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C702	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C703	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C704	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C705	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
[redacted]			

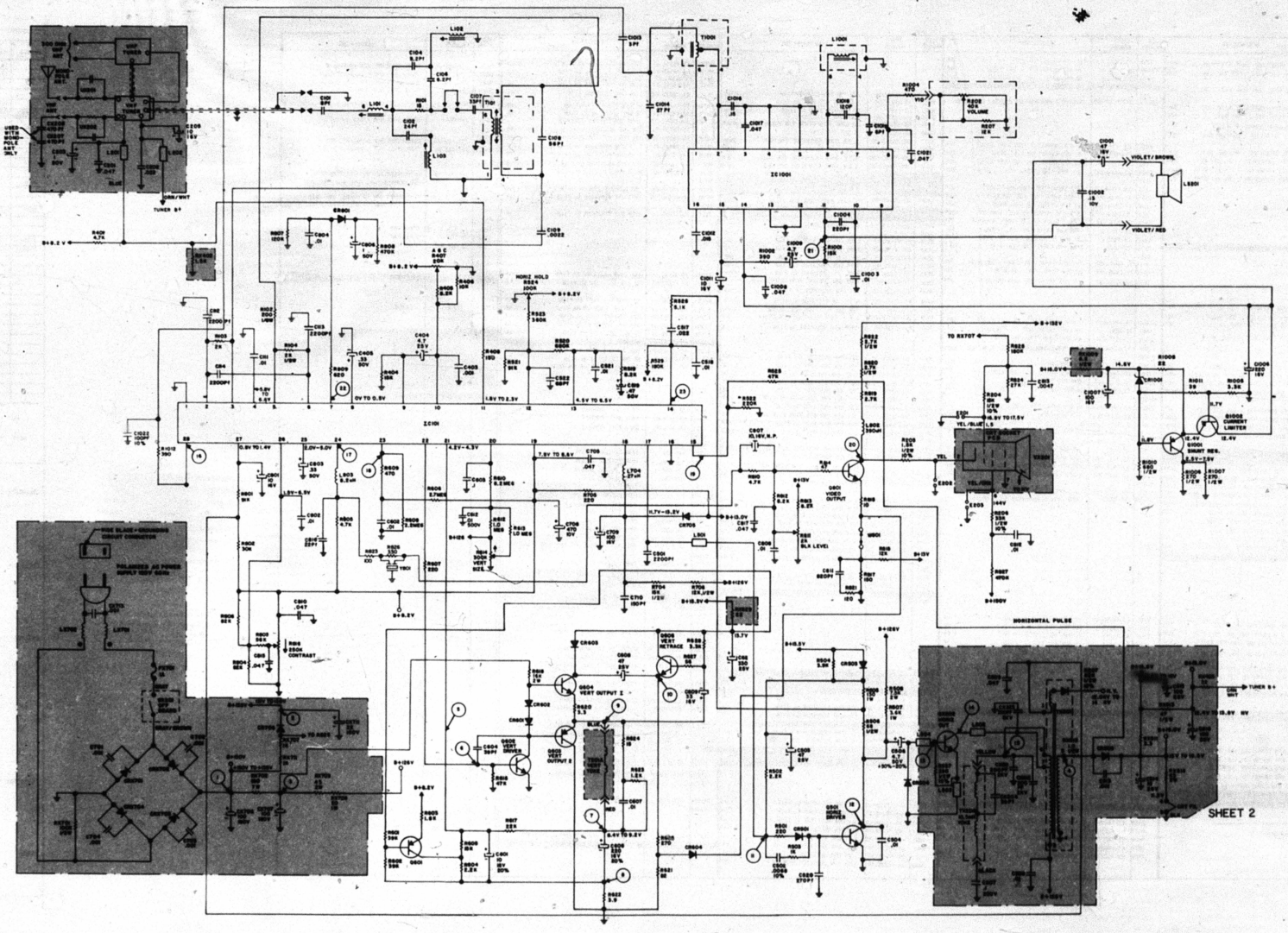
ITEM NUMBER	PART NUMBER	DESCRIPTION	
C708	22-7150-11A	470 MFD CAPACITOR +100%-10% ELECT	10V
C709	22-7859-09	100 MFD CAPACITOR ±20% ELECT	16V
C710	22-7751-38	150 PFD CAPACITOR ± 5% TUBULAR	50V
[redacted]			
C712			
[redacted]			
C801	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C802	22-7613-24A	.01 MFD CAPACITOR ±10% DISC	50V
C803	22-7390-05	.33 MFD CAPACITOR +50%-10% ELECT	50V
C804	22-7613-24A	.01 MFD CAPACITOR 10% DISC	50V
C805			
C806	22-7153A	1MFD CAPACITOR +100%-10% ELECT	50V
C807	22-7404-05	10 MFD CAPACITOR ±20% NP ELECT	16V
C808	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C809			
C810	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
C811	22-7742-09	820 PFD CAPACITOR ±10% TUBULAR	50V
C812	22-4905-01	.01 MFD CAPACITOR +80%-20% DISC	500V
C813	22-7440	4700 PFD CAPACITOR ±10% DISC	500V
C814			
C815	22-7615-10A	.047 MFD CAPACITOR + 80% - 20% DISC	50V
C816	22-7639-16A	22 PFD CAPACITOR ± 5% DISC	50V
C817	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1001	22-7151-07A	47 MFD CAPACITOR +100%-10% ELECT	16V
C1002	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1003	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C1004	22-7742-02	220 PFD CAPACITOR ±10% TUBULAR	50V
C1005			
C1006	22-7151-09A	220 MFD CAPACITOR +100%-10% ELECT	16V
C1007	22-7859-09	100 MFD CAPACITOR ±20% ELECT	16V
C1008	22-7615-10A	.047 MFD CAPACITOR +80%-10% DISC	50V
C1009	22-7708-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	25V
C1010			
C1011	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C1012	22-7614-26B	.015 MFD CAPACITOR ±20% DISC	50V
C1013	22-7631-02A	3 PFD CAPACITOR ± .25PF N150 DISC	50V
C1014	22-7746-22	27 PFD CAPACITOR ± 5% TUBULAR	50V
C1015			
C1016	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1017	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1018	22-7625-36A	120 PFD CAPACITOR ±5% N30 DISC	50V
C1019	22-7631-05A	6 PFD CAPACITOR ± .25 PF N150 DISC	50V
C1020			
C1021	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1022	22-7613A	100 PFD CAPACITOR ±10% DISC.	50V
R101	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R102	63-10875-01	200 OHM RESISTOR 5% FILM	1/8W
R103	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R104	63-10875	2K OHM RESISTOR 5% FILM	1/8W
R105			
R201			
[redacted]			
R203			
R204	63-7834	15K OHM RESISTOR 10% CARBON	1/2W
R205	63-7792	1.5K OHM RESISTOR 10% CARBON	1/2W
R206	63-7848	33K OHM RESISTOR 10% CARBON	1/2W
R207	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R401	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
[redacted]			
R404	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R405	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R406	63-10235-96	10K OHM RESISTOR 5% FILM	1/4W
R407	63-10851-16	20K OHM CONTROL AGC	
R408	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R501	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R502	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R504	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R505	63-10832-51	130 OHM RESISTOR 5% FILM	1W
R506	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R507	63-10832-85	3.6K OHM RESISTOR 5% FILM	1W
R508	63-10836-93	7.5K OHM RESISTOR 5% FILM	2W
R509			
R510			
[redacted]			
R517			
R518			
R519	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R520	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R521	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R522	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R523	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R524	63-9228-06	100K OHM CONTROL HORIZONTAL HOLD	
R525	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R526	63-10235-89	5.1K OHM RESISTOR 5% FILM	1/4W
R527	63-7764	330 OHM RESISTOR 10% CARBON	1/2W
R528			
R529	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R601	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R603	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R604	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R605	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R606	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R609	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R610	63-10236-66	8.2 MEG OHM RESISTOR 5% FILM	1/4W
R611			
R612	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R613	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R614	63-10521-04	300K OHM CONTROL VERTICAL SIZE	
R615	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R616			
R617	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R618	63-10837-01	16K OHM RESISTOR 5% FILM	2W
R619			
R620	63-10235-12	3.3 OHM RESISTOR 5% FILM	1/4W
R621	63-10235-46	82 OHM RESISTOR 5% FILM	1/4W
R622	63-10235-14	3.9 OHM RESISTOR 5% FILM	1/4W
R623	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R624	63-10235-28	15 OHM RESISTOR 5% FILM	1/4W
R625	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R626			
R627	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R628	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
[redacted]			
R704	63-10244	15K OHM RESISTOR 5% FILM	1/2W
R705	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R706	63-10243-98	12K OHM RESISTOR 5% FILM	1/2W
[redacted]			
R801	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-07	30K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R805	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R806	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R807	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W

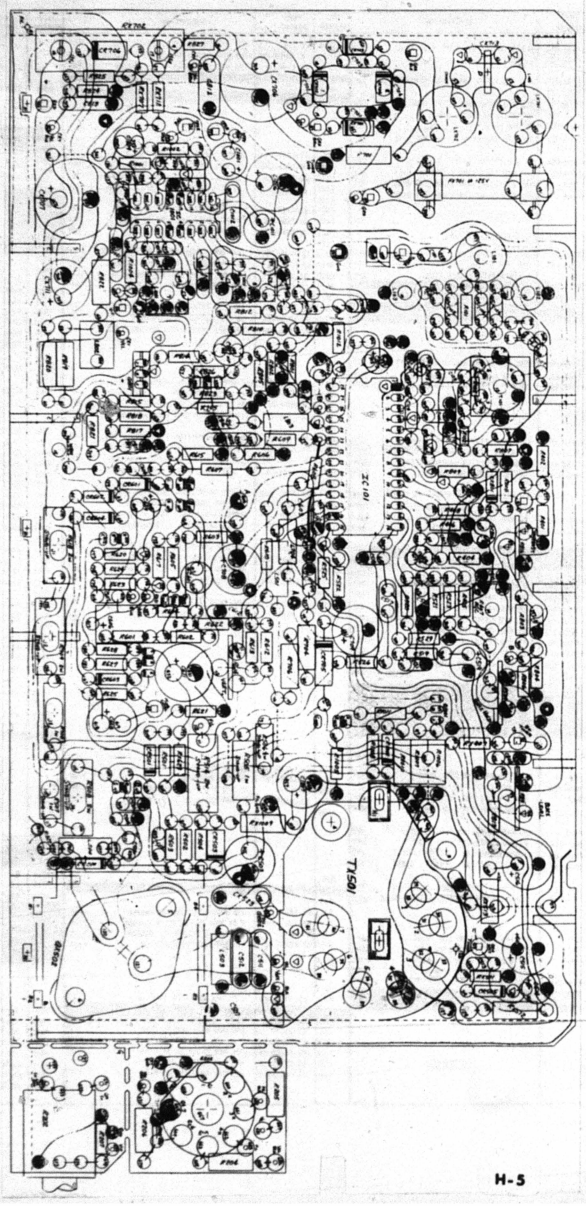
ITEM NUMBER	PART NUMBER	DESCRIPTION	
R809	63-10235-87	620 OHM RESISTOR 5% FILM	1/4W
R810	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R811	63-10521-07	2K OHM CONTROL BLACK LEVEL	
R812	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R813	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R816	63-10521-06	250K OHM CONTROL CONTRAST	
R817	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W
R818	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R819	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R820	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R821	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R822	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R823	63-10235-40	100 OHM RESISTOR 5% FILM	1/4W
R824	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R825	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R826	63-10235-60	330 OHM RESISTOR 5% FILM	1/4W
R827	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R1001	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R1003			
R1004	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1005	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1006	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1007	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1008	63-10235-32	22 OHM RESISTOR 5% FILM	1/4W
[redacted]			
R1010	63-10243-68	680 OHM RESISTOR 5% FILM	1/2W
R1011	63-10235-38	39 OHM RESISTOR 5% FILM	1/4W
R1012	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
L101	20-3117	COIL RCF, TUNABLE	
L102	20-3619-03	COIL RCF, TUNABLE	
L103	20-3619-03	COIL RCF, TUNABLE	
L201	149-333	FERRITE CORE SLEEVE	
L202	149-333	FERRITE CORE SLEEVE	
L501	149-509	FERRITE CORE SLEEVE	
L502	149-379	FERRITE CORE SLEEVE	
L503	149-509	FERRITE CORE SLEEVE	
L504	149-509	FERRITE CORE SLEEVE	
[redacted]			
L703			
L704	20-2834	COIL RCF 27 uH	
L801			
L802	20-2806	COIL RCF 390 uH	
L803	20-3907-11A	COIL RCF 8.2 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD	
L1002			
CR501	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR502			
CR503	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL	
CR505	103-263A	DIODE LOW VOLTAGE GENERAL	
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR603	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL	
[redacted]			
CR705	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR706	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR802			
CR1001	103-279A	DIODE ZENER	
CR1002			
Q501	121-819	TRANSISTOR NPN HORIZONTAL DRIVER	
[redacted]			

ITEM NUMBER	PART NUMBER	DESCRIPTION
Q601	121-699	TRANSISTOR PNP VERTICAL BIAS
Q602	121-975	TRANSISTOR NPN VERTICAL DRIVER
Q603	121-973	TRANSISTOR PNP VERTICAL OUTPUT 2
Q604	121-819	TRANSISTOR NPN VERTICAL OUTPUT 1
Q605		
Q606	121-819-01	TRANSISTOR NPN VERTICAL RETRACE
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
Q1001	121-765-01	TRANSISTOR PNP SHUNT REGULATOR
Q1002	121-765-01	TRANSISTOR PNP CURRENT LIMITER
IC101	221-201-03	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMPL AND PROCESSOR
IC1001	221-158	INTEFRATED CKT TV SOUND, ONE WATT
E201	52-958-04	SPARK GAP
E202	52-958-04	SPARK GAP
E203	52-958-04	SPARK GAP
[redacted]		
LS201	49-1259-02	SPEAKER
[redacted]		
T101	95-2909-08	TRANSFORMER RCF TUNABLE
[redacted]		
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ
Y801	224-23	CERAMIC FILTER

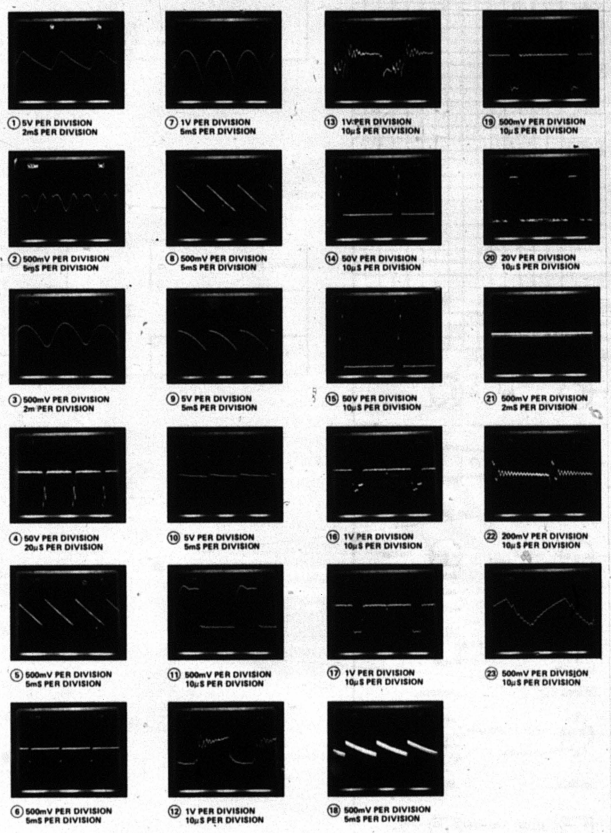
12YB4X CHASSIS SCHEMATIC

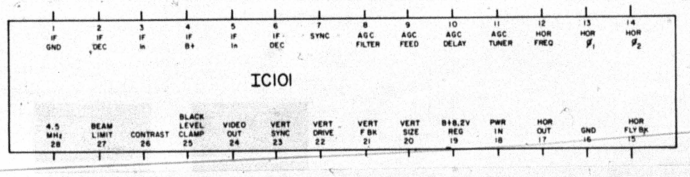


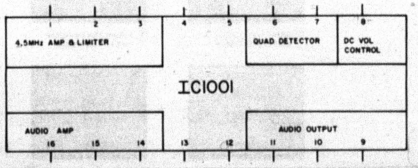
COMPONENT LAYOUT 12YB4X/12YB5X



12YB4X/12YB5X WAVEFORMS



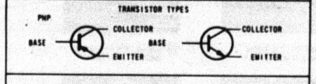


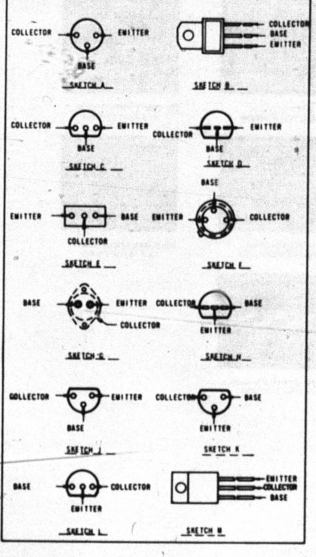


BOTTOM VIEWS OF TRANSISTORS

Q NUMBER	PART NUMBER	SKETCHES A	B	C	D	E	F	G	H	I	A	L	M
Q501	121-818		X	X									
Q502	121-988							X					
Q601	121-699				X					X			
Q602	121-975		X	X									
Q603	121-973									X			
Q604	121-819		X	X									
Q605													
Q606	121-619-01		X	X									
Q801	121-989		X										
Q1001	121-765-01		X	X									
Q1002	121-765-01		X	X									

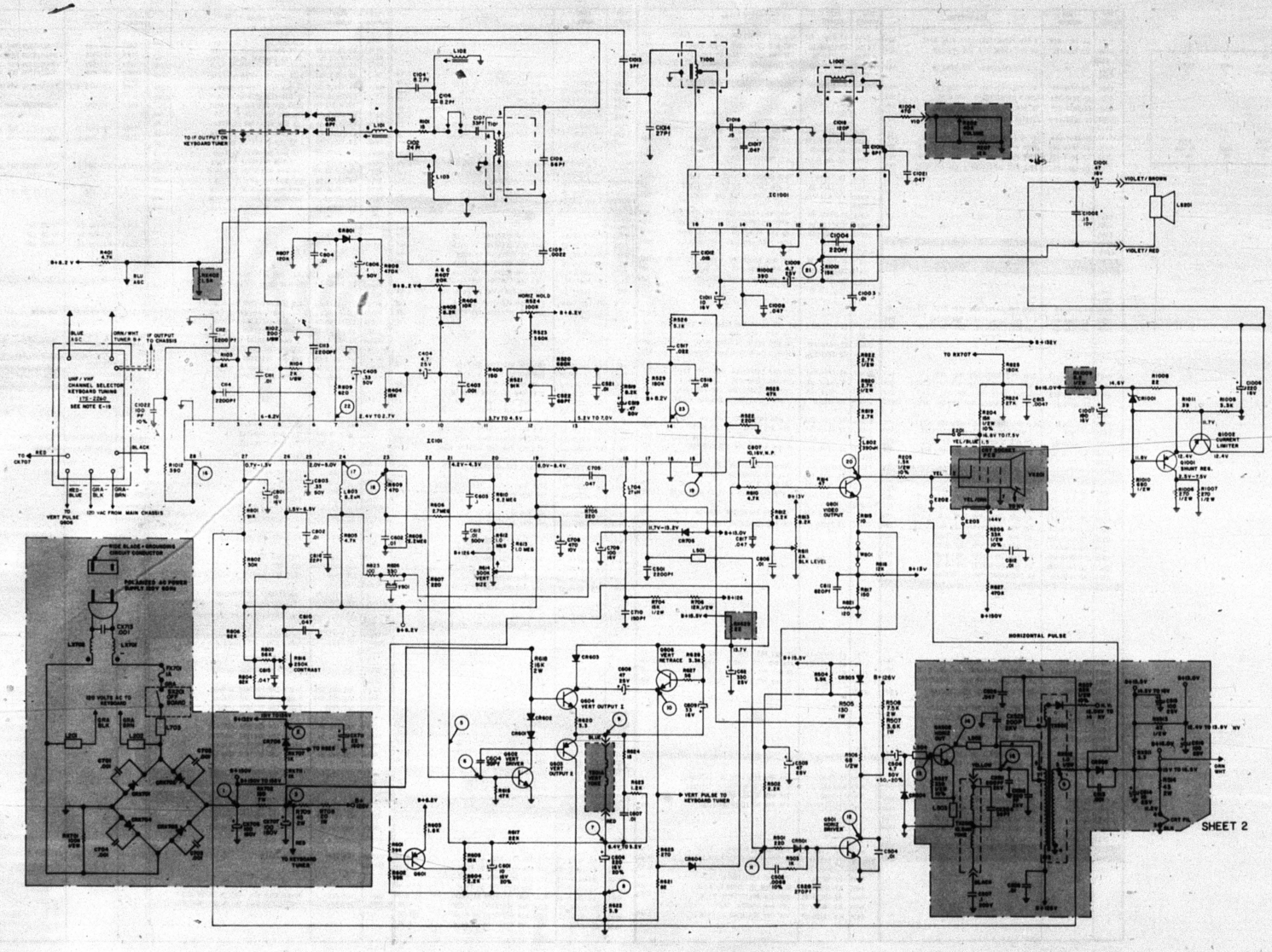
TRANSISTOR TYPES





SEMICONDUCTOR OUTLINE

12YB5X CHASSIS SCHEMATIC



12YB5X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7631-07A	8 PFD CAPACITOR: 25PF N150 DISC	50V
C102	22-7746-21	24 PFD CAPACITOR ±5% TUBULAR	50V
C103			
C104	22-7746-11	8.2 PFD CAPACITOR: 10% TUBULAR	50V
C105			
C106	22-7746-11	8.2 PFD CAPACITOR: 10% TUBULAR	50V
C107	22-7619-22A	33PFD CAPACITOR±5- NPO DISC	50V
C108	22-7631-27A	56 PFD CAPACITOR±5 N150 DISC	50V
C109	22-7614-16 B	2200PFD CAPACITOR ± 20% Z5T DISC	50V
C110			
C111	22-7615-06A	.01 MFD CAPACITOR + 80%-20% DISC	50V
C112	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C113	22-7614-16A	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C114	22-7614-16	2200 PFD CAPACITOR ± 20% Z5T DISC	50V
C201			
C202			
C203			
[redacted]			
C205			
[redacted]			
C401			
C402			
C403	22-7742-10	1000 PFD CAPACITOR ±10% DISC TUBULAR	50V
C404	22-7389-05	4.7 MFD CAPACITOR ± 20% ELECT	25V
C405	22-7390-05	33 MFD CAPACITOR +50%-10% ELECT	50V
C501	22-7613-16A	2200 PFD CAPACITOR ±10 DISC	50V
C502	22-7774-10	.0068 MFD CAPACITOR ±10% POLYESTER	100V
C503	22-7152-07A	47 MFD CAPACITOR +100 -10 ELECT	25V
C504	22-4905-01	.01 MFD CAPACITOR + 80%-20% DISC	500V
C505			
C506	22-7710-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	50V
C507	22-7682	.1 MFD CAPACITOR ±10% POLYESTER	200V
C508	22-4905-01	.01 MFD CAPACITOR +80 -20 DISC	500V
C509	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C510			
[redacted]			
C513	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C514	22-7152-04A	10 MFD CAPACITOR +100%-10 ELECT	25V
C515	22-7152-08A	100 MFD CAPACITOR +100-10 ELECT	25V
C516	22-7152-08A	100 MFD CAPACITOR +100-10 ELECT	25V
C517	22-7774-16	.022 MFD CAPACITOR ±10 POLYESTER	100V
C518	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C519	22-7390-02	.47 MFD CAPACITOR ±20 ELECT	50V
C520	22-7613-05A	270 PFD CAPACITOR ±10 DISC	50V
C521	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C522	22-7743-32	68 PFD CAPACITOR ±5 TUBULAR	50V
[redacted]			
C601	22-7456-01	10 MFD CAPACITOR ±20 ELECT	16V
C602	22-7615-06A	.01 MFD CAPACITOR +80 -20 DISC	50V
C603	22-7547	.1 MFD CAPACITOR ±10% POLYESTER	50V
C604	22-7746-26	39 PFD CAPACITOR ±5% TUBULAR	50V
C605			
C606	22-7887	220 MFD CAPACITOR ±20 ELECT	16V
C607	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C608	22-7860-08	47 MFD CAPACITOR ± 20% ELECT	25V
C609	22-7858-07	33 MFD CAPACITOR ± 20% ELECT	16V
C610			
C611	22-7860-11	330 MFD CAPACITOR ±20% ELECT	25V
C612	22-4905-01	.01 MFD CAPACITOR + 80%-20% DISC	500V
C701	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C702	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C703	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C704	22-7241	.001 MFD CAPACITOR ±10 DISC	500V
C705	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
[redacted]			

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C708	22-7150-11A	470 MFD CAPACITOR +100 -10% ELECT	10V
C709	22-7858-09	100 MFD CAPACITOR ± 20% ELECT	16V
C710	22-7751-38	150 PFD CAPACITOR: 5% TUBULAR	50V
[redacted]			
CJ12			
[redacted]			
C801	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C802	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C803	22-7390-05	33 MFD CAPACITOR +50-10 ELECT	50V
C804	22-7613-24A	.01 MFD CAPACITOR ±10 DISC	50V
C805			
C806	22-7153A	1MFD CAPACITOR +100-10 ELECT	50V
C807	22-7404-05	10 MFD CAPACITOR ±20% NP ELECT	16V
C808	22-7614-24A	.01 MFD CAPACITOR ±20 DISC	50V
C809			
C810	22-7615-10A	.047 MFD CAPACITOR + 80%-20% DISC	50V
C811	22-7742-09	820 PFD CAPACITOR ±10 TUBULAR	50V
C812	22-4905-01	.01 MFD CAPACITOR +80-20% DISC	500V
C813	22-7440	4700 PFD CAPACITOR ±10 DISC	500V
C814			
C815	22-7615-10A	.047 MFD CAPACITOR + 80% - 20% DISC	50V
C816	22-7639-16A	22 PFD CAPACITOR ± 5% DISC	50V
C817	22-7615-10A	.047 MFD CAPACITOR +80%-20% DISC	50V
C1001	22-7151-07A	47 MFD CAPACITOR +100-10% ELECT	16V
C1002	22-5251	.15 MFD CAPACITOR ±20% DISC	10V
C1003	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50V
C1004	22-7742-02	220 PFD CAPACITOR ±10% TUBULAR	50V
C1005			
C1006	22-7151-09A	220 MFD CAPACITOR +100 -10 ELECT	16V
C1007	22-7858-09	100 MFD CAPACITOR ± 20% ELECT	16V
C1008	22-7615-10A	.047 MFD CAPACITOR +80 -10 DISC	50V
C1009	22-7708-04C	4.7 MFD CAPACITOR + 50%-10% ELECT	25V
C1010			
C1011	22-7151-04A	10 MFD CAPACITOR +100%-10% ELECT	16V
C1012	22-7614-26B	.015 MFD CAPACITOR ±20% DISC	50V
C1013	22-7631-02A	3 PFD CAPACITOR ± 25PF N150 DISC	50V
C1014	22-7746-22	27 PFD CAPACITOR ±5% TUBULAR	50V
C1015			
C1016	22-5251	.15 MFD CAPACITOR ±20 DISC	10V
C1017	22-7615-10A	.047 MFD CAPACITOR +80-20 DISC	50V
C1018	22-7625-36A	120 PFD CAPACITOR ±5 N30 DISC	50V
C1019	22-7631-05A	6 PFD CAPACITOR ± 25 PF N150 DISC	50V
C1020			
C1021	22-7615-10A	.043 MFD CAPACITOR +80-20 DISC	50V
C1022	22-7613A	100 PFD CAPACITOR ±10% DISC.	50V
R101	63-10235-28	15 OHM RESISTOR 5 FILM	1/4W
R102	63-10875-01	200 OHM RESISTOR 5 FILM	1/8W
R103	63-10875	2K OHM RESISTOR 5 FILM	1/8W
R104	63-10875	2K OHM RESISTOR 5 FILM	1/8W
R105			
R201			
[redacted]			
R203			
R204	63-7834	15K OHM RESISTOR [illegible] CARBON	1/2W
R205	63-7792	1.5K OHM RESISTOR 10 CARBON	1/2W
R206	63-7840	33K OHM RESISTOR 10 CARBON	1/2W
R207	63-10235-98	12K OHM RESISTOR 5 FILM	1/4W
R401	63-10235-88	4.7K OHM RESISTOR 5 FILM	1/4W
[redacted]			
R404	63-10236	15K OHM RESISTOR 5 FILM	1/4W
R405	63-10235-94	8.2K OHM RESISTOR 5 FILM	1/4W
R406	63-10235-96	10K OHM RESISTOR 5 FILM	1/4W
R407	63-10651-16	20K OHM CONTROL AGC	
R408	63-10235-52	150 OHM RESISTOR 5 FILM	1/4W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R501	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R502	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R503	63-10235-72	1K OHM RESISTOR 5% FILM	1/4W
R504	63-10235-86	3.9K OHM RESISTOR 5% FILM	1/4W
R505	63-10832-51	130 OHM RESISTOR 5% FILM	1W
R506	63-10243-44	68 OHM RESISTOR 5% FILM	1/2W
R507	63-10832-85	3.6K OHM RESISTOR 5% FILM	1W
R508	63-10836-93	7.5K OHM RESISTOR 5% FILM	2W
R509			
R510			
[redacted]			
R514	63-10836-39	43 OHM RESISTOR 5% FILM	2W
[redacted]			
R517			
R518			1/4W
R519	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R520	63-10236-40	680K OHM RESISTOR 5% FILM	1/4W
R521	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R522	63-10236-28	220K OHM RESISTOR 5% FILM	1/4W
R523	63-10236-33	360K OHM RESISTOR 5% FILM	1/4W
R524	63-9228-06	100K OHM CONTROL HORIZONTAL HOLD	
R525	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R526	63-10235-89	5.1K OHM RESISTOR 5% FILM	1/4W
R527	63-7764	330 OHM RESISTOR 10% CARBON	1/2W
R528			
R529	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R601	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R602	63-10236-10	39K OHM RESISTOR 5% FILM	1/4W
R603	63-10235-78	1.8K OHM RESISTOR 5% FILM	1/4W
R604	63-10235-80	2.2K OHM RESISTOR 5% FILM	1/4W
R605	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R606	63-10236-54	2.7 MEG OHM RESISTOR 5% FILM	1/4W
R607	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R608	63-10236-52	2.2 MEG OHM RESISTOR 5% FILM	1/4W
R609	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R610	63-10236-66	8.2 MEG OHM RESISTOR 5% FILM	1/4W
R611			
R612	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R613	63-10236-44	1.0 MEG OHM RESISTOR 5% FILM	1/4W
R614	63-10521-04	300K OHM CONTROL VERTICAL SIZE	
R615	63-10236-12	47K OHM RESISTOR 5% FILM	1/4W
R616			
R617	63-10236-04	22K OHM RESISTOR 5% FILM	1/4W
R618	63-10837-01	16K OHM RESISTOR 5% FILM	2W
R619			
R620	63-10235-12	3.3 OHM RESISTOR 5% FILM	1/4W
R621	63-10235-46	82 OHM RESISTOR 5% FILM	1/4W
R622	63-10235-14	3.9 OHM RESISTOR 5% FILM	1/4W
R623	63-10235-74	1.2K OHM RESISTOR 5% FILM	1/4W
R624	63-10235-20	15 OHM RESISTOR 5% FILM	1/4W
R625	63-10235-58	270 OHM RESISTOR 5% FILM	1/4W
R626			
R627	63-10235-42	56 OHM RESISTOR 5% FILM	1/4W
R628	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
[redacted]			
R704	63-10244	15K OHM RESISTOR 5% FILM	1/2W
R705	63-10235-56	220 OHM RESISTOR 5% FILM	1/4W
R706	63-10243-98	12K OHM RESISTOR 5% FILM	1/2W
[redacted]			
R708	63-10832-31	20 OHM RESISTOR 5% FILM	1W
R709	63-10836-34	43 OHM RESISTOR 5% FILM	2W
[redacted]			
R801	63-10236-19	91K OHM RESISTOR 5% FILM	1/4W
R802	63-10236-07	30K OHM RESISTOR 5% FILM	1/4W
R803	63-10236-14	56K OHM RESISTOR 5% FILM	1/4W
R804	63-10236-16	82K OHM RESISTOR 5% FILM	1/4W
R805	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R806	63-10236-18	82K OHM RESISTOR 5% FILM	1/4W
R807	63-10236-22	120K OHM RESISTOR 5% FILM	1/4W
R808	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W

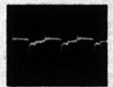
ITEM NUMBER	PART NUMBER	DESCRIPTION	
R809	63-10235-67	620 OHM RESISTOR 5% FILM	1/4W
R810	63-10235-88	4.7K OHM RESISTOR 5% FILM	1/4W
R811	63-10521-07	2K OHM CONTROL BLACK LEVEL	1/4W
R812	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R813	63-10235-94	8.2K OHM RESISTOR 5% FILM	1/4W
R814	63-10235-40	47 OHM RESISTOR 5% FILM	1/4W
R815	63-10235-24	10 OHM RESISTOR 5% FILM	1/4W
R816	63-10521-06	250K OHM CONTROL CONTRAST	
R817	63-10235-52	150 OHM RESISTOR 5% FILM	1/4W
R818	63-10235-98	12K OHM RESISTOR 5% FILM	1/4W
R819	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R820	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R821	63-10235-50	120 OHM RESISTOR 5% FILM	1/4W
R822	63-10243-82	2.7K OHM RESISTOR 5% FILM	1/2W
R823	63-10235-48	100 OHM RESISTOR 5% FILM	1/4W
R824	63-10236-06	27K OHM RESISTOR 5% FILM	1/4W
R825	63-10236-26	180K OHM RESISTOR 5% FILM	1/4W
R826	63-10235-60	330 OHM RESISTOR 5% FILM	1/4W
R827	63-10236-36	470K OHM RESISTOR 5% FILM	1/4W
R1001	63-10236	15K OHM RESISTOR 5% FILM	1/4W
R1002	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
R1003			
R1004	63-10235-64	470 OHM RESISTOR 5% FILM	1/4W
R1005	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4W
R1006	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1007	63-10243-58	270 OHM RESISTOR 5% FILM	1/2W
R1008	63-10235-32	22 OHM RESISTOR 5% FILM	1/4W
[redacted]			
R1010	63-10243-68	680 OHM RESISTOR 5% FILM	1/2W
R1011	63-10235-38	39 OHM RESISTOR 5% FILM	1/4W
R1012	63-10235-62	390 OHM RESISTOR 5% FILM	1/4W
L101	20-3117	COIL RCF. TUNABLE	
L102	20-3619-03	COIL RCF. TUNABLE	
L103	20-3619-03	COIL RCF. TUNABLE	
L201	149-379	FERRITE CORE SLEEVE	
L202	149-379	FEPRITE CORE SLEEVE	
L501	149-509	FERRITE CORE SLEEVE	
L502	149-379	FERRITE CORE SLEEVE	
L503	149-509	FERRITE CORE SLEEVE	
L504	149-509	FERRITE CORE SLEEVE	
[redacted]			
L703			
L704	20-2834	COIL RCF 27 uH	
L801			
L802	20-2806	COIL RCF 390 uH	
L803	20-J907-11A	COIL RCF 8.2 uH	
L1001	20-3755	COIL RCF TUNABLE 4.5 MHZ QUAD	
L1002			
T101	95-2909-08	TRANSFORMER RCF TUNABLE	
[redacted]			
T1001	95-3247	TRANSFORMER RCF TUNABLE 4.5 MHZ	
CR501	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR502			
CR503	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR504	103-295-02A	DIODE LOW VOLTAGE GENERAL	
CR505	103-263A	DIODE LOW VOLTAGE GENERAL	
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR602	102-142-01	DIODE LOW VOLTAGE GENERAL	
CR603	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL	
[redacted]			
CR705	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR706	103-261-02A	DIODE LOW VOLTAGE GENERAL	
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL	
CR802			
CR1001	103-279A	DIODE ZENER	
CR1002			
Q501	121-819	TRANSISTOR NPN HORIZONTAL DRIVER	
[redacted]			

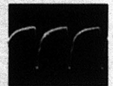
ITEM NUMBER	PART NUMBER	DESCRIPTION
Q601	121-699	TRANSISTOR PNP VERTICAL BIAS
Q602	121-975	TRANSISTOR NPN VERTICAL DRIVER
Q603	121-973	TRANSISTOR PNP VERTICAL OUTPUT 2
Q604	121-819	TRANSISTOR NPN VERTICAL OUTPUT 1
Q605		
Q606	121-819-01	TRANSISTOR NPN VERTICAL RETRACE
Q801	121-990	TRANSISTOR NPN VIDEO OUTPUT
Q1001	121-765-01	TRANSISTOR PNP SHUNT REGULATOR
Q1002	121-765-01	TRANSISTOR PNP CURRENT LIMITER
IC101	221-201-03	INTEGRATED CKT HOR/VER COUNTDOWN LOW LEVEL SIGNAL AMPL AND PROCESSOR
IC1001	221-158	INTEFRATED CKT TV SOUND, ONE WATT
E201	52-958-04	SPARK GAP
E202	52-958-04	SPARK GAP
E203	52-958-04	SPARK GAP
[redacted]		
LS201	49-1259-02	SPEAKER
[redacted]		
Y801	224-23	CERAMIC FILTER

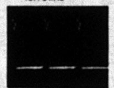
19MB2X WAVEFORMS

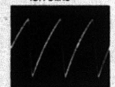
⑥ 38V P-P 15.75kHz

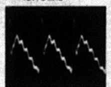
⑰ 22.5V P-P 15.75kHz


⑦ 21V P-P 15.75kHz

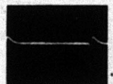

⑱ 8V P-P 15.75kHz


⑧ 960V P-P 15.75kHz


⑲ 11V P-P 15.75kHz

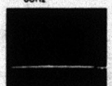

⑨ 28V P-P 15.75kHz

⑳ 12V P-P 15.75 kHz


① 6.7V P-P 60Hz

⑩ 44V P-P 15.75kHz

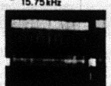
㉑ 2.8V P-P 60Hz

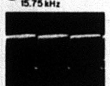

② 6.4V P-P 60Hz

⑪ 210V P-P 15.75kHz

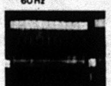
㉓ 125V P-P 15.75kHz

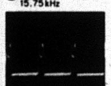
③ 46V P-P 60Hz


⑫ 2.8V P-P 60Hz


㉔ 16V P-P 15.75kHz

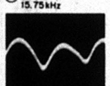
④ 3.8V P-P 60Hz


⑬ 2.8V P-P 60Hz


㉕ 8V P-P 15.75kHz

⑤ 0.8V P-P 15.75kHz

⑭ 8V P-P 60Hz


㉖ 600mV P-P 60Hz

⑮ 125V P-P 60Hz

㉗ 6V P-P 60Hz

⑯ 22.5V P-P 60Hz

19MB2X LEGEND

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C101	22-7637-03A	4 PFD CAPACITOR ±.25PF DISC	50 V
C102	22-7631-05A	6 PFD CAPACITOR ±.25 PFD DISC	50V
C103	22-7621-22A	33 PFD CAPACITOR ±5% DISC	50 V
C104		10 PFD CAPACITOR (PART OF L104)	
C105			
C106	22-7635-08A	10 PFD CAPACITOR ±.25 PF DISC.	50 V
C108	22-7631-10A	11 PFD CAPACITOR ±.5% PF DISC.	50V
C109	22-7631-30A	25 PFD CAPACITOR ±5% DISC.	50V
C111	22-7637-08A	8 PFD CAPACITOR ±.25 PF DISC.	50V
C112	22-7635-08A	10PFD CAPACITOR ±.25 PF DISC.	50V
C113	22-7613-15A	1000 PFD CAPACITOR ±10% DISC.	50V
C114	22-7613-15A	1000 PFD CAPACITOR ±10% DISC.	50V
C115	22-7620-08A	8PFD CAPACITOR ±.5PF DISC.	50V
C116		7PFD CAPACITOR (PART OF L108)	50V
C117	22-7679-01	250 PFD CAPACITOR ±5% DISC	50V
C118	22-7630-12A	15PFD CAPACITOR ±5% DISC.	50V
C119	21-7631-07A	9 PFD CAPACITOR ±.25 PF DISC	50V
C120			
C121	22-7615-08A	.01 MFD CAPACITOR +80%-20% DISC	50V
C122	22-7637-20A	68 PFD CAPACITOR ±5% DISC.	50V
C123	22-7613-15A	1000 PFD CAPACITOR ±10% DISC.	50V
C124	22-7613-15A	1000 PFD CAPACITOR ±10% DISC	50V
C125	22-7614-02A	150 PFD CAPACITOR ±20% DISC	50V
C126	22-7614-18A	3300 PFD CAPACITOR ±20% DISC.	50V
C127	22-7613-15A	1000 PFD CAPACITOR ±10% DISC.	50V
C128	22-7630-12A	15 PFD CAPACITOR ±5% DISC.	50V
C129			
C131	22-7680-10A	12 PFD CAPACITOR ±5% DISC.	50V
C132	22-7631-05A	6 PFD CAPACITOR ±.25 PF DISC.	50V
C133	22-7615-02A	.0022 MFD CAPACITOR +80-20% DISC.	50V
C134	22-7640-02A	4 PFD CAPACITOR ±.5 PF DISC.	50V
C201	22-7241	.001 MFD CAPACITOR ± 10% DISC.	500V
C202	22-6447-01	.047 MFD CAPACITOR POLYESTER	100V
C203	22-7615-02	.0022 MFD CAPACITOR +80-20% DISC.	50V
C204	22-7431-02	470 MFD CAPACITOR, U.L. ACROSS THE LINE	
C205	22-7431-02	470 PFD CAPACITOR, U.L. ACROSS THE LINE C8031(1585)	
C206			
C207	22-7431-04	.001 MFD CAPACITOR ±20% DISC	UL
C208	22-7431-04	.001 MFD CAPACITOR ±20% DISC	UL
[illegible]	22-7300	300PFD CAPACITOR ±10% DISC	2KV
C401	22-7300-05	.33 MFD CAP +50%-10% ELECTROLYTIC	50 V
C402	22-7614-12A	.001 MFD CAPACITOR ±20% DISC	50 V
C403	22-7615-08A	.01 MFD CAPACITOR +80%-20% DISC	50 V
C404	22-7300-03	2.2MFD CAPACITOR ±20% ELECTROLYTIC	25 V
C405	22-7579	22 MFD CAPACITOR ±20% ELECTROLYTIC	16 V
C406	22-7614-24A	.01 MFD CAPACITOR ±20% DISC	50 V
C407	22-7613-04A	220 PF. CAPACITOR ±10% DISC.	50V
C501	22-7152-05	22 MFD CAP +100%-10% ELECTROLYTIC	25 V
C502	22-7450	.0033 MFD CAPACITOR ±10% TUBULAR	100 V
C503	22-5071	.0033 MFD CAPACITOR ±10% POLYESTER	50 V
C504	22-7614-14A	1500 PFD CAPACITOR 20% DISC.	50 V
C505	22-5585	750 PFD CAPACITOR 10% DISC	500V
C506	22-7440	.0047 MFD CAPACITOR ±10% DISC	100 V
C507	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50 V
C508	22-7300-03	3.3 MFD CAPACITOR ±20% ELECTROLYTIC	50 V
C509	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50 V
C510	22-7614-02A	150 PFD CAPACITOR ±20% DISC.	50V
C511	22-7614-26A	.015 MFD CAPACITOR ±20% DISC	50 V
C512	22-6157	56 pFD CAPACITOR 10% DISC	500 V
C513	22-7614-14A	1500pFD CAPACITOR ±20% DISC	50 V
C514	22-7614-12A	1000pFD CAPACITOR ±20% DISC	50 V
RC515	22-7620	75 PFD CAPACITOR [illegible]	2KV
C516	22-6807	.2 MFD CAPACITOR ±5% POLYESTER	400 V
RC517	22-7300	600 PFD CAPACITOR ±5% DISC	2K
RC518	22-7300	600 PFD CAPACITOR ±5% DISC.	2K V
RC519	22-7300	600 PFD CAPACITOR ±5% DISC	2KV
C520			
RC521	22-7300	600 PFD CAPACITOR ±5% DISC	2K V
RC522	22-7300	600 PFD CAPACITOR ±5% DISC.	2K V
RC523	22-6115	.002 MFD CAPACITOR ±10% TUBULAR	50 V
C524	22-7682	.1 MFD CAPACITOR POLYESTER	200 V
C525			
[illegible]	22-7241	.001 MFD CAPACITOR ±10% DISC	500 V
C601	22-7614-20A	.0047 MFD CAPACITOR ±20% DISC	50 V
C602	22-7614-20A	.0047 MFD CAPACITOR ±20% DISC	50 V
C603	22-7614-20A	.0047 MFD CAPACITOR ±20% DISC	50 V
C604	22-7506	.33MFD CAPACITOR ±10% POLYESTER	50 V
C605	22-7614-20A	.0047 MFD CAPACITOR ±20% DISC	50 V
C606	22-7608	.38 MFD CAPACITOR ±10% POLYESTER	100 V
C607	22-7154-C6	100 MFD CAP +100%-10% ELECTROLYTIC	35 V
C608			
C609	22-7154-1C	330 MFD CAP +100%-10% ELECTROLYTIC	35 V
C610	22-7614-20A	.0047 MFD CAPACITOR 20% DISC	50 V
C611	22-7154-08	220 MFD CAP +100%-20% ELECTROLYTIC	35 V
C612	22-7390-08	22 MFD CAPACITOR ±20% ELECTROLYTIC	50 V
C613	22-7390-08	22 MFD CAPACITOR ±20% ELECTROLYTIC	50 V
C614	22-7390-08	22 MFD CAPACITOR ±20% ELECTROLYTIC	50 V
C615			
C616	22-6163	100 PFD CAPACITOR ±10% DISC	500 V
C617	22-7151-05	22 MFD CAP +100%-10% ELECTROLYTIC	16 V
C618	22-7614A	100pFD CAPACITOR 20% DISC	50 V
C619	22-7154-07	47 MFD CAP +100%-10% ELECTROLYTIC	35 V
C620			
C621	22-7152-05	22 MFD CAP +100%-10% ELECTROLYTIC	25 V
C622	22-7615-08A	.022 MFD CAPACITOR +80%-20% DISC	50 V
C623	22-0600	.001 MFD CAPACITOR ±10% DISC	500V
C624	22-7300-08	470 MFD CAPACITOR ±20% ELECTROLYTIC	25 V
C625	22-7241	1000 PFD CAPACITOR ±10% DISC.	500V
C701	22-7241	.001 MFD CAPACITOR ±10% DISC	500 V
C702	22-7241	.001 MFD CAPACITOR ± 10% DISC	500 V
C703	22-7241	.001 MFD CAPACITOR ±10% DISC	500 V
C704	22-7241	.001 MFD CAPACITOR ±10% DISC	500 V
C705			
C706	22-7760	220 MFD CAP +100%-10% ELECTROLYTIC	200 V
C707	22-7760	220 MFD CAP +100%-10% ELECTROLYTIC	200V
C708			
C709	22-7682	.1 MFD CAPACITOR 10% POLYESTER	200 V
C710			
C711	22-7152-08	100 MFD CAP +100%-10% ELECTROLYTIC	25 V
C712	22-7154-09	220 MFD CAP +100%-20% ELECTROLYTIC	35 V

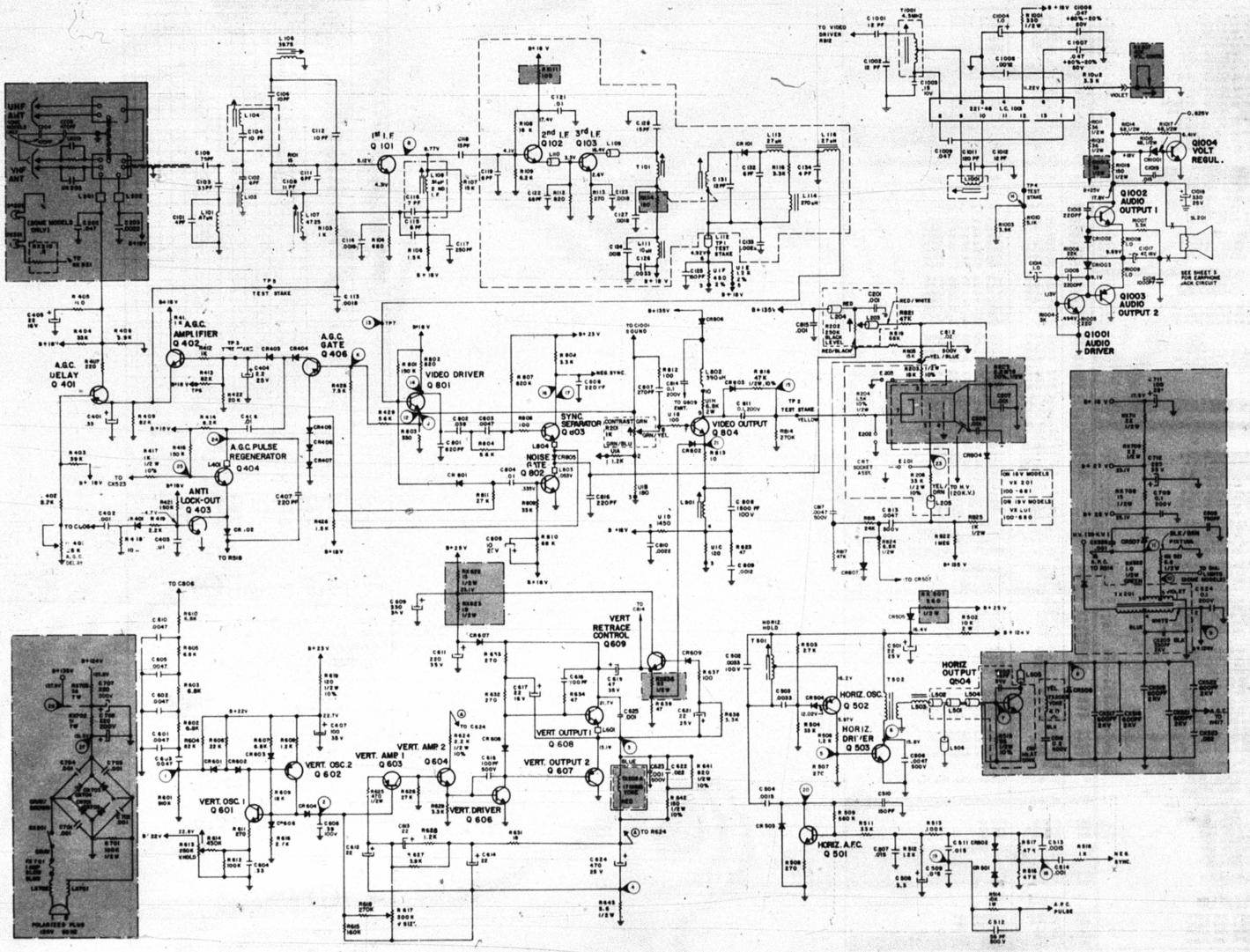
TOLERANCES			
LINEAR	INCH	mm	ANGULAR
.X			
.XX			
.XXX			
UNLESS OTHERWISE SPECIFIED			

ITEM NUMBER	PART NUMBER	DESCRIPTION	
C801	22-7613-11A	820 PFD CAPACITOR 10% DISC	50 V
C802	22-7202	.039 MFD CAPACITOR 10% POLYESTER	50 V
C803	22-7614-20A	.0047 MFD CAPACITOR 20% DISC	50 V
C804	22-7615-08A	.01 MFD CAPACITOR +80-20% DISC	50 V
C805	22-7152-04	10 MFD CAP +100%-10% ELECTROLYTIC	25 V
C806	22-7614-04A	220 PFD CAPACITOR 20% DISC	50 V
C807	22-7613-05A	270 PFD CAPACITOR 10% DISC	50 V
C808	22-7490-01	.0015 MFD CAPACITOR 10% TUBULAR	100 V
C809	22-7613-13A	.0012 MFD CAPACITOR ± 10% DISC.	50 V
C810	22-7615-02A	.0022 MFD CAPACITOR +80%-20%	50 V
C811	22-7082-01	.1 MFD CAPACITOR 20% POLYESTER	200 V
C812	22-7724	.02 MFD CAPACITOR DISC +80-20% DISC	500V
C813	22-7440	.0047 MFD CAPACITOR 10% DISC.	500V
C814	22-7082-01	0.1 MFD CAPACITOR 20% POLYESTER	200V
C815	22-7241	.001 MFD CAPACITOR ±10% DISC	500V
C816	22-7613-04A	220 PF CAPACITOR ±10% DISC.	50V
C817	22-7440	.0047 MFD CAPACITOR 10% DISC.	500V
C1001	22-7631-11A	12 PFD CAPACITOR ±5% DISC	50 V
C1002	22-7622-12A	12 PFD CAPACITOR ±10% DISC	50 V
C1003	22-5251	.15 MFD CAPACITOR ±20% DISC	10 V
C1004	22-7153	1.0MFD CAPACITOR +100%-10% ELECTROLYTIC	50 V
C1005	22-7613-16A	.0022 MFD CAPACITOR ±10% DISC	50V
C1006	22-7616-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C1007	22-7616-10	.047 MFD CAPACITOR +80%-20% DISC	50V
C1008	22-7613-23B	.0082 MFD CAPACITOR ±10% DISC	50 V
C1009	22-6447-03	.047 MFD CAPACITOR ±20% POLYESTER	100 V
C1010			
C1011	22-7625-38A	120 PFD CAPACITOR ±5% DISC	50 V
C1012	22-7630-10A	12 PFD CAPACITOR ±5% DISC	50 V
C1013			50 V
C1014	22-7153	1 MFD CAPACITOR +100-10% ELECTROLYTIC	50V
C1015	22-7614-04A	220 PFD CAPACITOR 20% DISC	50V
C1016	22-7613-12A	1000 PFD CAPACITOR 10% DISC	50 V
C1017	22-7151-07	47 MFD CAPACITOR +100-10% ELECTROLYTIC	16 V
C1018	22-7152-10	330 MFD CAPACITOR +100-10% ELECTROLYTIC	25V
C1019	22-7613-26B	.015 MFD CAPACITOR ±10% DISC	50V
R101	63-10235-28	15 OHM RESISTOR 5% FILM	1/4 W
R102			
R103	63-10235-72	1K OHM RESISTOR 5% FILM	1/4 W
R104	63-10235-68	680 OHM RESISTOR 5% FILM	1/4 W
R105			
R106	63-10235-76	1.5K OHM RESISTOR 5% FILM	1/4 W
R107	63-10236	15K OHM RESISTOR 5% FILM	1/4 W
R108	63-10236-02	10K OHM RESISTOR 5% FILM	1/4 W
R109	63-10235-81	6.2K OHM RESISTOR 5% FILM	1/4 W
R110			
R111	63-10235-48	100 OHM RESISTOR 5% FILM	1/4 W
R112	63-10235-70	820 OHM RESISTOR 5% FILM	1/4 W
R113	63-10235-58	270 OHM RESISTOR 5% FILM	1/4 W
R114	63-10235-48	100 OHM RESISTOR 5% FILM	1/4 W
R115			
R116	63-10235-84	3.3K OHM RESISTOR 5% FILM	1/4 W
R201	63-10503-02	1K OHM CONTRAST CONTROL	
OR	63-10555	1K OHM CONTRAST CONTROL	
R202	63-8896-01	250K OHM BLACK LEVEL CONTROL	
OR	63-10220	250 K OHM BLACK LEVEL CONTROL	
R203	63-1834	15K OHM RESISTOR 10% CARBON	1/2W
R204	63-1792	1.5K OHM RESISTOR 10% CARBON	1/2W
R205	63-6035	150 OHM RESISTOR ±10% CARBON	1W
R206	63-1848	33 K OHM RESISTOR 10% CARBON	1/2W
R207	63-10539	40K OHM VOLUME CONTROL	
OR	63-10539-01	40K OHM VOLUME CONTROL	
OR	63-10570	40K OHM VOLUME CONTROL	
R208	63-1926	2.2 MEGOHM RESISTOR ±20%	1/2W
R209			
R210	63-10559-08	1.8 OHM RESISTOR FILM 5% SPECIAL	1/4W
R211			
R212			
R401	63-10636	25K OHM A.G.C. DELAY CONTROL	
R402	63-10235-94	8.2K OHM RESISTOR FILM 5%	1/4W
R403	63-10236-10	39K OHM RESISTOR FILM 5%	1/4W
R404	63-10236-08	33K OHM RESISTOR FILM 5%	1/4W
R405	63-10235-48	100 OHM RESISTOR FILM 5%	1/4W
R406	63-10235-86	3.9K OHM RESISTOR FILM 5%	1/4W
R407	63-10235-56	220 OHM RESISTOR FILM 5%	1/4W
R408			
R409	63-10236-18	82K OHM RESISTOR FILM 5%	1/4W
R410			
R411	63-10235-72	1K OHM RESISTOR FILM 5%	1/4W
R412	63-10235-72	1K OHM RESISTOR FILM 5%	1/4W
R413	63-10236-18	82K OHM RESISTOR FILM 5%	1/4W
R414	63-10235-94	8.2 K OHM RESISTOR FILM 5%	1/4W
R415			
R416	63-10236-24	150K OHM RESISTOR FILM 5%	1/4W
R417	63-1785	1K OHM RESISTOR CARBON 10%	1/2W
R418	63-10235-96	10K OHM RESISTOR FILM 5%	1/4W
R419	63-10235-80	2.2 K OHM RESISTOR FILM 5%	1/4W
R420			
R421	63-10236-24	150K OHM RESISTOR FILM 5%	1/4W
R422	63-10236-03	20K OHM RESISTOR FILM 5%	1/4W
R423			
R424			
R425			
R426	63-10235-76	1.5K OHM RESISTOR FILM 5%	1/4W
R427			
R428	63-10235-93	7.5K OHM RESISTOR FILM 5%	1/4W
R429	63-10235-90	5.6K OHM RESISTOR FILM 5%	1/4W
R501	63-10243-[illegible]	560 OHM RESISTOR FILM 5%	1/2W
R502	63-10371-06	10K OHM RESISTOR FILM 5%	2W
R503	63-10236-06	27K OHM RESISTOR FILM 5%	1/4W
R504	63-10236-08	33K OHM RESISTOR FILM 5%	1/4W
R505			
R506	63-10235-74	1.2 K OHM RESISTOR FILM 5%	1/4W
R507	63-10235-58	270 OHM RESISTOR FILM 5%	1/4W
R508	63-10235-58	270 OHM RESISTOR FILM 5%	1/4W
R509	63-10236-38	560 K OHM RESISTOR FILM 5%	1/4W
R510			
R511	63-10236-08	33K OHM RESISTOR FILM 5%	1/4W
R512	63-10235-74	1.2 K OHM RESISTOR FILM 5%	1/4W
R513	63-10236-20	100K OHM RESISTOR FILM 5%	1/4W
R514	63-10347-06	15K OHM RESISTOR FILM 5%	1W
R515			
R516	63-10236-12	47K OHM RESISTOR FILM 5%	1/4W
R517	63-10236-12	47K OHM RESISTOR FILM 5%	1/4W
R518	63-10235-72	1 K OHM RESISTOR FILM 5%	1/4W
R519	63-1733	56 OHM RESISTOR CARBON 10%	1/2W
R520			
R521	63-10565-20	6.8 OHM RESISTOR FILM 5% SPECIAL	1/2W
R522	63-10565	1 OHM RESISTOR FILM 5% SPECIAL	1/2W

ITEM NUMBER	PART NUMBER	DESCRIPTION	
R601	63-10236-43	910K OHM RESISTOR FILM 5%	1/4 W
R602	63-10235-82	6.8K OHM RESISTOR FILM 5%	1/4 W
R603	63-10235-82	6.8K OHM RESISTOR FILM 5%	1/4 W
R604	63-10236-18	82K OHM RESISTOR FILM 5%	1/4 W
R605	63-10235-82	6.8K OHM RESISTOR FILM 5%	1/4 W
R606	63-10236-04	22K OHM RESISTOR FILM 5%	1/4 W
R607	63-10235-82	6.8K OHM RESISTOR FILM 5%	1/4 W
R608	63-10235-74	1.2K OHM RESISTOR FILM 5%	1/4 W
R609	63-10236-02	18K OHM RESISTOR FILM 5%	1/4 W
R610	63-10235-82	6.8K OHM RESISTOR FILM 5%	1/4 W
R611	63-10235-58	270 OHM RESISTOR FILM 5%	1/4 W
R612	63-10236-20	100K OHM RESISTOR FILM 5%	1/4 W
R613	63-10505-02	250K OHM VERTICAL HOLD CONTROL	
R614	63-10236-35	430K OHM RESISTOR FILM 5%	1/4 W
R615	63-10236-25	160K OHM RESISTOR FILM 5%	1/4 W
R616	63-10235-82	2.7K OHM RESISTOR FILM 5%	1/4 W
R617	63-10731	300K OHM VERTICAL SIZE CONTROL	
R618	63-10236-30	270K OHM RESISTOR FILM 5%	1/4 W
R619	63-1747	120 OHM RESISTOR CARBON 10%	1/2 W
R620			
R622	63-10565-28	15 OHM RESISTOR FILM 5% SPECIAL	1/2 W
R623	63-10565-20	18 OHM RESISTOR FILM 5% SPECIAL	1/2 W
R624	63-1799	2.2K OHM RESISTOR CARBON 10%	1/2 W
R625	63-1770	470 OHM RESISTOR CARBON 5%	1/2W
R626	63-10236-06	27K OHM RESISTOR FILM 5%	1/4 W
R627	63-10235-86	3.9K OHM RESISTOR FILM 5%	1/4 W
R628	63-10235-74	1.2K OHM RESISTOR FILM 5%	1/4 W
R629	63-10235-84	3.3K OHM RESISTOR FILM 5%	1/4 W
R630			
R631	63-10235-30	18 OHM RESISTOR FILM 5%	1/4 W
R632	63-10235-58	270 OHM RESISTOR FILM 5%	1/4 W
R633	63-10235-58	270 OHM RESISTOR FILM 5%	1/4 W
R634	63-10235-40	47 OHM RESISTOR FILM 5%	1/4 W
R635			
R636	63-10565-40	82 OHM RESISTOR FILM 5% SPECIAL	1/2 W
R637	63-10235-48	100 OHM RESISTOR FILM 5%	1/4 W
R638	63-10235-84	3.3K OHM RESISTOR FILM 5%	1/4 W
R639	63-10235-40	47 OHM RESISTOR FILM 5%	1/4 W
R640			
R641	63-1782	820 OHM RESISTOR CARBON 10%	1/2 W
R642	63-1750	150 OHM RESISTOR CARBON 10%	1/2 W
R643	63-4532	5.6 OHM RESISTOR CARBON 5%	1/2 W
R701	63-10244-20	100K OHM RESISTOR FILM 5%	1/2 W
R702	[illegible]	.51 OHM RESISTOR WIRE WOUND 5%	7 W
R703	[illegible]	56 OHM RESISTOR WIREWOUND 5%	7 W
R705			
R706			
R707			
R708	63-10565-28	15 OHM RESISTOR FILM 5% SPECIAL	1/2 W
R709	63-1714	22 OHM RESISTOR CARBON 5%	1/2 W
R710			
R711	63-1714	22 OHM RESISTOR CARBON 5%	1/2 W
R801	63-10236-24	150K OHM RESISTOR FILM 5%	1/4 W
R802	63-10235-70	820 OHM RESISTOR FILM 5%	1/4 W
R803	63-10235-60	330 OHM RESISTOR FILM 5%	1/4 W
R804	63-10235-80	5.6K OHM RESISTOR FILM 5%	1/4 W
R805	63-10236	15K OHM RESISTOR FILM 5%	1/4 W
R806	63-10235-48	100 OHM RESISTOR FILM 5%	1/4 W
R807	63-10236-42	820K OHM RESISTOR FILM 5%	1/4 W
R808	63-10235-84	3.3K OHM RESISTOR FILM 5%	1/4 W
R809	63-10236-08	33K OHM RESISTOR FILM 5%	1/4 W
R810	63-10236-16	68K OHM RESISTOR FILM 5%	1/4 W
R811	63-10236-06	27K OHM RESISTOR FILM 5%	1/4 W
R812	63-10235-48	100 OHM RESISTOR FILM 5%	1/4 W
R813	63-10235-24	10 OHM RESISTOR FILM 5%	1/4 W
R814	63-10236-30	270K OHM RESISTOR FILM 5%	1/4 W
R815			
R816	63-1855	47K OHM RESISTOR CARBON 10%	1/2 W
R817	63-4254	47K OHM RESISTOR CARBON 5%	1/4W
R818	63-4243	24K OHM RESISTOR CARBON 5%	1/4W
R819	63-10236-16	68K OHM RESISTOR FILM 5%	1/4 W
R820			
R821	63-10236-12	47K OHM RESISTOR FILM 5%	1/4 W
R822	63-10236-44	1 MEGOHM RESISTOR FILM 5%	1/4 W
R823	63-10235-40	47 OHM RESISTOR FILM 5%	1/4 W
R824	63-1819	6.8K OHM RESISTOR CARBON 5%	1/2W
R825	63-1785	1 K OHM RESISTOR CARBON 10%	1/2W
R1001	63-10243-60	330 OHM RESISTOR FILM 5%	1/2W
R1002	63-10235-84	3.3K OHM RESISTOR FILM 5%	1/4W
R1003	63-10235-86	3.9K OHM RESISTOR FILM 5%	1/4W
R1004	63-10235-83	3.0K OHM RESISTOR FILM 5%	1/4W
R1005	63-10235-56	220 OHM RESISTOR FILM 5%	1/4W
R1006	63-10236-04	22K OHM RESISTOR FILM 5%	1/4W
R1007	63-10235-84	3.3K OHM RESISTOR FILM 5%	1/4W
R1008	63-10235	1.0 OHM RESISTOR FILM 5%	1/4W
R1009	63-10235	1.0 OHM RESISTOR FILM 5%	1/4W
R1010	63-10235-89	5.1K OHM RESISTOR FILM 5%	1/4W
R1011	63-1724	36 OHM RESISTOR CARBON 5%	1/2W
R1012	63-1724	36 OHM RESISTOR CARBON 5%	1/2W
R1013	63-10565-30	22 OHM RESISTOR FILM 5% (SPECIAL)	1/2W
R1014	63-1735	68 OHM RESISTOR CARBON 5%	1/2W
R1015	63-1735	68 OHM RESISTOR CARBON 5%	1/2W
R1016			
R1017	63-1735	68 OHM RESISTOR CARBON 5%	1/2W
R1018	63-10243-52	150 OHM RESISTOR FILM 5%	1/2W
L101	20-2832	COIL PEAKING 47 uH	
L103	20-3405	COIL RCF TUNABLE	
L104	5-04251-01	COIL ASSEMBLY RCF TUNABLE	
L105			
L106	20-3819-01	COIL RCF TUNABLE	
L107	20-3819-03	COIL RCF TUNABLE	
L108	5-04251-10	COIL ASSEMBLY RCF TUNABLE	
L109	149-417	FERRITE CORE SLEEVE	
L110	149-418	FERRITE CORE SLEEVE	
L111	20-2811	COIL PEAKING 10uH	
L112	149-417-01	FERRITE CORE BEAD	
L113	20-2707	COIL PEAKING 27uH	
L114	20-2813	COIL PEAKING 270 uH	
L115			
L116	20-2707	COIL PEAKING 27 uH	
L201	149-333	FERRITE CORE SLEEVE	
L202	149-333	FERRITE CORE SLEEVE	
L203	149-379	FERRITE CORE SLEEVE	
L204	149-379	FERRITE CORE SLEEVE	
L205	149-379	FERRITE CORE SLEEVE	
L401	149-417	FERRITE CORE SLEEVE	

ITEM NUMBER	PART NUMBER	DESCRIPTION
L501	149-379	FERRITE SLEEVE
L502	149-379	FERRITE SLEEVE
L503	20-3831-06	COIL R.C.F.
L504	149-379	FERRITE SLEEVE
L505	149-379	FERRITE SLEEVE
L506	149-379	FERRITE SLEEVE
L601	149-417	FERRITE SLEEVE
LX701	20-3866-03	COIL CHOKE
LX702	20-3866-03	COIL CHOKE
L801	20-3405	COIL RCF TUNABLE
L802	20-2806	COIL PEAKING 390 uH
L803	149-417	FERRITE SLEEVE
L804	149-417	FERRITE SLEEVE
L1001	20-3755	COIL RCF TUNABLE
T101	95-2909-05	TRANSFORMER RCF TUNABLE
TX201	95-3429	SWEEP TRANSFORMER
TX202	95-3216-03	DEFLECTION YOKE (19V ONLY)
	95-3216-04	DEFLECTION YOKE (19V + 22V ONLY)
T501	95-3386	TRANSFORMER RCF TUNABLE
T502	95-3385	HORIZONTAL DRIVER
TX203	95-3379-07	TRANSFORMER, AUDIO ISOLATION(SOME MODELS)
T1001	95-3747	TRANSFORMER RCF TUNABLE
CR101	103-23-01	DIODE HIGH FREQUENCY
CR401	103-142-01	DIODE LOW VOLTAGE GENERAL
CR402	103-142-01	DIODE LOW VOLTAGE GENERAL
CR403	103-142-01	DIODE LOW VOLTAGE GENERAL
CR404	103-142-01	DIODE LOW VOLTAGE GENERAL
CR405	103-142-01	DIODE LOW VOLTAGE GENERAL
CR406	103-142-01	DIODE LOW VOLTAGE GENERAL
CR407	103-142-01	DIODE LOW VOLTAGE GENERAL
CR501	103-142-01	DIODE LOW VOLTAGE GENERAL
CR502	103-142-01	DIODE LOW VOLTAGE GENERAL
CR503	103-142-01	DIODE LOW VOLTAGE GENERAL
CR504	103-142-01	DIODE LOW VOLTAGE GENERAL
CR505	103-261-01	DIODE LOW VOLTAGE GENERAL
CR506	103-287	DIODE HIGH VOLTAGE GENERAL
CR507	103-284	DIODE LOW VOLTAGE GENERAL
CR601	103-142-01	DIODE LOW VOLTAGE GENERAL
CR602	103-142-01	DIODE LOW VOLTAGE GENERAL
CR603	103-142-01	DIODE LOW VOLTAGE GENERAL
CR604	103-142-01	DIODE LOW VOLTAGE GENERAL
CR605		
CR606	103-142-01	DIODE LOW VOLTAGE GENERAL
CR607	103-142-01	DIODE LOW VOLTAGE GENERAL
CR608	103-142-01	DIODE LOW VOLTAGE GENERAL
CR609	103-142-01	DIODE LOW VOLTAGE GENERAL
CR701	103-261-04	DIODE LOW VOLTAGE GENERAL
CR702	103-261-04	DIODE LOW VOLTAGE GENERAL
CR703	103-261-04	DIODE LOW VOLTAGE GENERAL
CR704	103-261-04	DIODE LOW VOLTAGE GENERAL
CR801	103-142-01	DIODE LOW VOLTAGE GENERAL
CR802	103-295-02	DIODE LOW VOLTAGE GENERAL
CR803	103-261-02	DIODE LOW VOLTAGE GENERAL
CR804	212-76	DIODE LOW VOLTAGE GENERAL
CR805	103-142-01	DIODE LOW VOLTAGE GENERAL
CR806	103-261-04	DIODE LOW VOLTAGE GENERAL
CR807	103-261-04	DIODE LOW VOLTAGE GENERAL
CR1001	103-279-27	DIODE ZENER 18V
CR1002	103-142-01	DIODE LOW VOLTAGE GENERAL
CR1003	103-142-01	DIODE LOW VOLTAGE GENERAL
Q101	121-503	TRANSISTOR 1ST I.F.
Q102	121-204	TRANSISTOR 2ND I.F.
Q103	121-204	TRANSISTOR 3RD I.F.
Q401	121-699	TRANSISTOR AGC DELAY
Q402	121-499	TRANSISTOR AGC-AMP
Q403	121-875	TRANSISTOR ANTI-LOCK OUT
Q404	121-875	TRANSISTOR AGC PULSE REGENERATOR
Q405		
Q406	121-699	TRANSISTOR AGC GATE
Q501	121-875	TRANSISTOR HORIZ. AFC
Q502	121-446	TRANSISTOR HORIZ. OSC.
Q503	121-419	TRANSISTOR HORIZ. DRIVER
QX504	[illegible]	TRANSISTOR HORIZ. OUTPUT
Q505		
Q601	121-875	TRANSISTOR VERT OSC 1
Q602	121-699	TRANSISTOR VERT OSC 2
Q603	121-699	TRANSISTOR VERT AMP 1
Q604	121-875	TRANSISTOR VERT AMP 2
Q605		
Q606	121-419	TRANSISTOR VERT DRIVER
Q607	121-1036	TRANSISTOR VERT OUTPUT 2
Q608	121-1035	TRANSISTOR VERT OUTPUT 1
Q609	121-419	TRANSISTOR VERT BLANKING
Q801	121-895	TRANSISTOR VIDEO DRIVER
Q802	121-875	TRANSISTOR NOISE GATE
Q803	121-875	TRANSISTOR SYNC SEPARATOR
Q804	121-868	TRANSISTOR VIDEO OUTPUT
Q1001	121-875	TRANSISTOR AUDIO DRIVER
Q1002	121-766-01	TRANSISTOR AUDIO OUTPUT 1
Q1003	121-765-01	TRANSISTOR AUDIO OUTPUT 2
Q1004	121-1035	TRANSISTOR VOLTAGE REGULATOR
IC1001	221-48	I.C. SOUND
U1	105-148-01	RESISTIVE NETWORK TH CK FILM
FX701	136-116-19	FUSE 1 AMP TIME DELAY 125V
E201	52-058-02	SPARK GAP
E202	52-058-02	SPARK GAP
E203	52-058-02	SPARK GAP
SX201	65-1498	SWITCH (SOME MODELS ONLY)
OR	PART OF 63-10539	SWITCH (SOME MODELS ONLY)
	63-10539-01	
NX201	105-148	ANTENNA ISOLATION NETWORK
NX202	105-148	ANTENNA ISOLATION NETWORK
LS201	40-1215-06 OR 40-1263-02	SPEAKER
DS201	100-380-07	INCANDESCENT LAMP
DS202	100-380-07	INCANDESCENT LAMP
J201	78-2239	EAR PHONE JACK(SOME MODELS ONLY)
VX201	100-680	19VBAP4 OR 19VACP4(19V MODELS ONLY)
OR	100-681	19VDEP4 OR 19VDDP4(19V MODELS ONLY)

19MB2X CHASSIS SCHEMATIC



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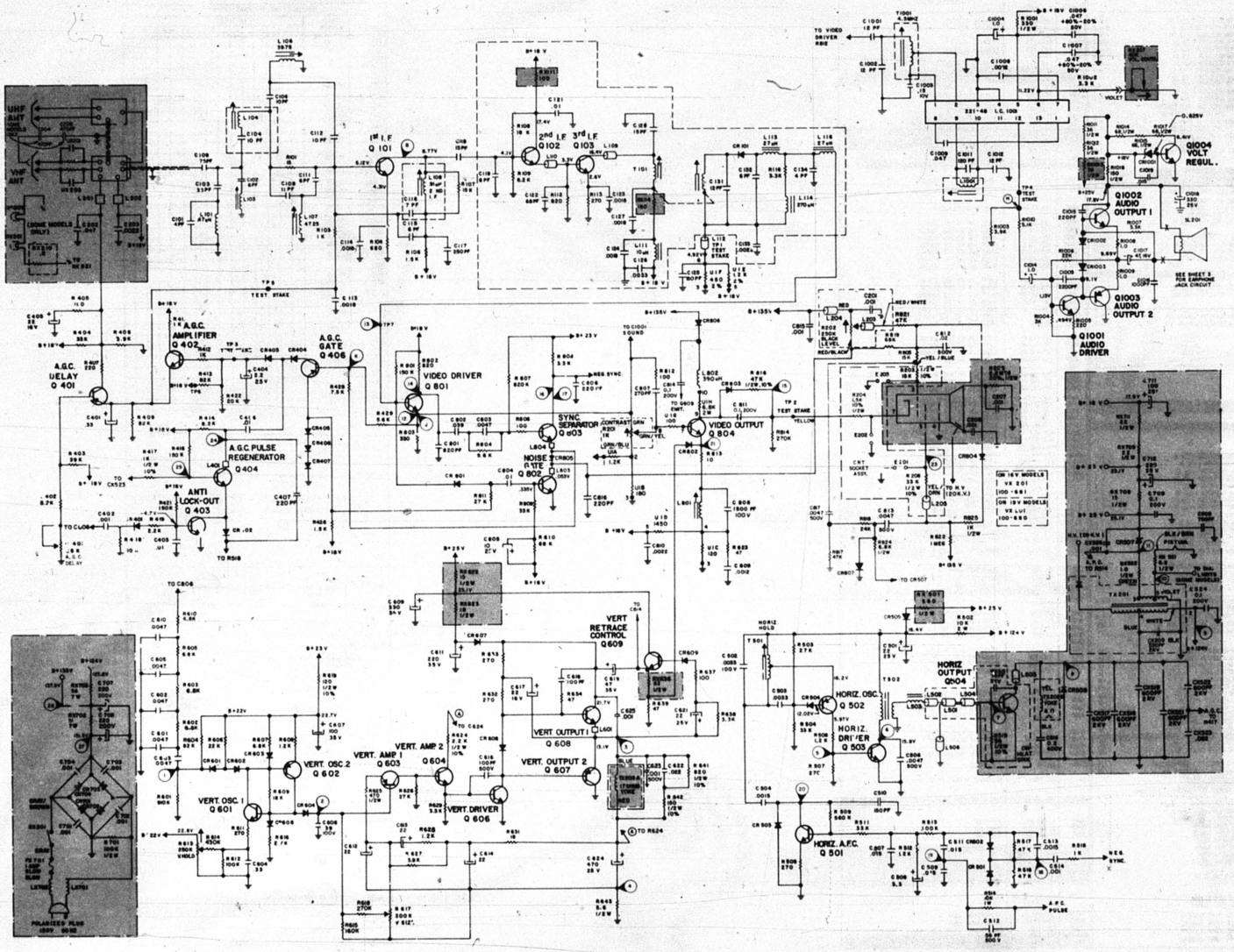
19MB2X CHASSIS SCHEMATIC



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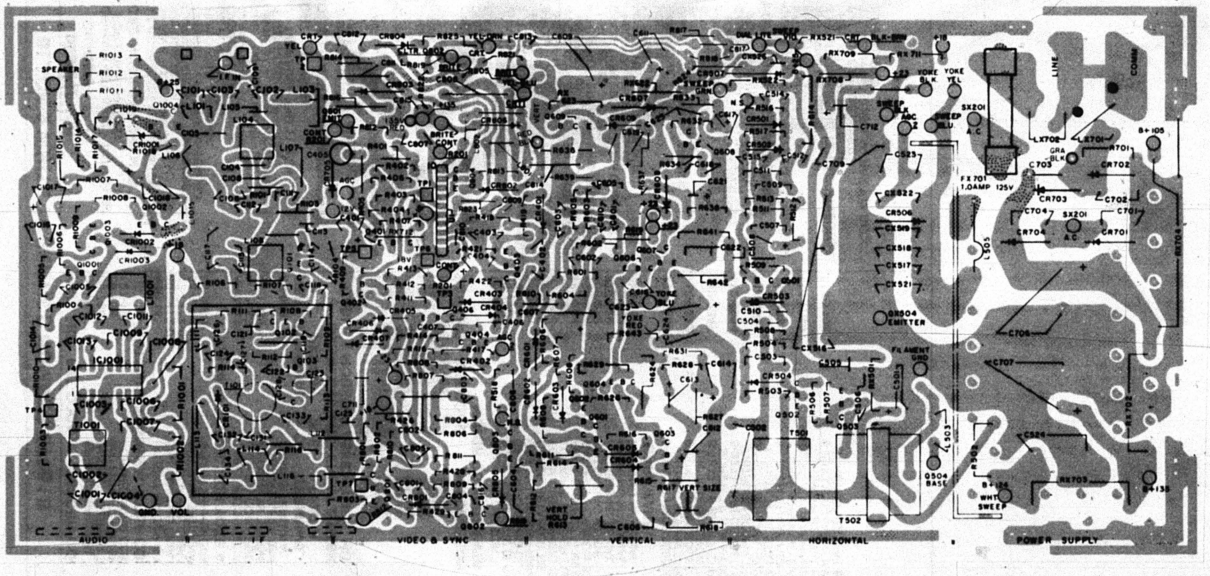

19MB2X COMPONENT LAYOUT

SEMICONDUCTOR OUTLINE

Q NUMBER	PART NUMBER	BOTTOM VIEWS OF TRANSISTORS — SKETCHES A	B	C	D	E	F	G	H	J	K	L	M
Q101	121-503								X		X		
Q102	121-504								X			X	
Q103	121-524								X			X	
Q401	121-699				X				X				
Q402	121-499			X					X				
Q403	121-875			X	X				X				
Q404	121-875			X	X				X				
Q405													
Q406	121-699				X				X				
Q501	121-875			X		X			X				
Q502	121-446			X					X				
Q503	121-818			X	X				X				
Q504	121-985							J					
Q505													
Q601	121-875				X				X				
Q602	121-699				X				X				
Q603	121-699				X				X				
Q604	121-875			X	X				X				
Q605													
Q606	121-819			X	X				X				
Q607	121-1036					X							
Q608	121-1035					X							
Q609	121-819			X	X				X				
Q801	121-895			X	X								
Q802	121-875			X	X				X				
Q803	121-875			X	X				X				
Q804	121-868	X											
D1001	121-875			X	X				X				
D1002	121-766-01			X	X				X				
D1003	121-765-01			X	X				X				
D1004	121-1035												

TRANSISTOR TYPES

PNP: BASE, COLLECTOR, EMITTER

NPN: COLLECTOR, BASE, EMITTER

SKETCH A: EMITTER, COLLECTOR, BASE

SKETCH B: COLLECTOR, BASE, EMITTER

SKETCH C: COLLECTOR, BASE, EMITTER

SKETCH D: COLLECTOR, BASE, EMITTER

SKETCH E: BASE, EMITTER, COLLECTOR

SKETCH F

SKETCH G: BASE, EMITTER, COLLECTOR

SKETCH H: BASE, EMITTER

SKETCH J: COLLECTOR, EMITTER, BASE

SKETCH K: COLLECTOR, BASE, EMITTER

SKETCH L: BASE, COLLECTOR, EMITTER

BLACK & WHITE TV SERVICE NUMBER BT051B

PART NO	REF CODE	DESCRIPTION
		CHASSIS
5NB5X		CHASSIS (SEE 5NB5X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-9042		AC POWER SUPPLY ADAPTER
A-9107-01		TV FINE TUNING KNOB
A-9108-02		VOLUME KNOB
A-9110-05		CABINET FRONT & TRIM ASSEMBLY
A-9130-01		CABINET LEFT SIDE ASSEMBLY
1-140-01		MONOPOLE ANTENNA
11-345		DC POWER CORD
14-11406-01		CABINET REAR
39-56-01		EARPHONE
46-10339		PUSH BUTTON KNOB (5 REQ ON, OFF, VHF LO, VHF HI, UHF)
49-1314-01		3 1/2" ROUND SPEAKER
136-345		3A 125V FUSE (P/O 11-345)
		CRT (5VAHP4)
		VOLUME CONTROL & BRACKET COMPONENTS
A-9828		SHAFT ASSEMBLY
A-12443		CABLE & CONNECTOR HOUSING ASSEM (F22, P/O A-12451)
A-12445		CABLE & CONNECTOR HOUSING ASSEM (F17, P/O A-12451)
A-12446		CABLE & CONNECTOR HOUSING ASSEM (F18)
A-12450		CABLE & CONNECTOR HOUSING ASSEM (F20, P/O A-12451)
A-12451		3 CONNECTOR CABLE & CONNECTOR HSG HARNESS
A-12452		CABLE & CONNECTOR HSG ASSEM (F26)
S-89003-16		DIAL CORD ASEMBLY
12-7625-01		MAIN CONTROL BRACKET
12-7915		"U" CHANNEL BRACKET
26-2557-05		VHF-UHF DRUM DIAL SCALE
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F17, 86-648 TERM)
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F18, 86-648 TERM)
43-1766-02		4 POSITION SPRING TERM CONNECTOR HSG (F26, 86-648 TERM)
43-1766-04		6 POSITION SPRING TERM CONNECTOR HSG (22, 86-648 TERM)
43-1766-16		8 POSITION SPRING TERM CONNECTOR HSG (F20, 86-648 TERM)
54-989		M9X1.0 HEX MACHINE NUT
63-10866		TV TUNING CONTROL
63-10873		VOLUME CONTROL
78-2239		EARPHONE JACK
80-2386-01		DIAL CORD TENSION SPRING
85-1581-01		PUSH-BUTTON SWITCH
86-648		SPRING TERMINAL
114-602		4-24X1/4X3/16AF HEX HD THD FORM SCREW TP B STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
		A-9111-01 CABINET RIGHT SIDE ASSEMBLY
A-12435		CABLE & CONNECTOR HSG ASSEM (F15)
12-7050		SWITCH MTG PLATE
30-931-01		SIDE OVERLAY
43-1728		ANTENNA HOUSING
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F15, 86-648 TERM)
54-854		PALNUT CAP FASTENER
64-1037-01		ROUND HEAD TUBULAR RIVET (2 REQ)
85-1589		LEAF SWITCH

PART NO	REF CODE	DESCRIPTION
86-648		SPRING TERMINAL
86-766		BATTERY CENTER TERMINAL (3 REQ)
86-768		ANTENNA TERMINAL
127-196		FORMED WIRE CONTACT (3 REQ)
		ANTENNA TERMINAL STRIP COMPONENTS
A-9118		INT/EXT SWITCH & TERMINAL ASSEMBLY
52-2472-01		75Ω COAXIAL CABLE (13")
52-2472-02		75Ω COAXIAL CABLE (9")
86-411-01		ANTENNA TERMINAL (2 REQ)
95-3508		BALUN TRANSFORMER
		A-12432 DEFLECTION YOKE ASSEMBLY
A-12441		CABLE & CONNECTOR HSG ASSEM (F24)
A-12453		CABLE & CONNECTOR HSG ASSEM (F23)
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F23,F24, 86-648 TERM)
86-648		SPRING TERMINAL

CONNECTOR REFERENCE DESIGNATION OF CABLE & HOUSING ASSEMBLIES, HOUSINGS & PLUGS

REF #	HOUSING PART #	# OF POS.	TERMINAL PART #	PART OF ASSEMBLY #
F15	43-1766-01	3	86-648	A-12435
F17	43-1766	2	86-648	A-12445
F18	43-1766-01	3	86-648	A-12446
F20	43-1766-16	8	86-648	A-12450
F22	43-1766-04	6	86-648	A-12443
F23	43-1766	2	86-648	A-12453
F24	43-1766	2	86-648	A-12441
F26	43-1766-02	4	86-648	A-12452

PART NO	REF CODE	DESCRIPTION
		MINOR COMPONENTS
16-5132		PACKING CARTON
19-733-01		3 4/5" CABLE TIE (5 REQ)
19-950		SPKR RETAINING CLIP
33-698		CRT RETAINING FRAME
83-8066-02		CABLE RETAINER TIE
83-8903-03		FOAM CUSHIONING (2 REQ)
86-256		LOCKING SOLDER TERMINAL
166-234		FOOT BUMPER (4 REQ)
194-824		BATTERY POSITION SPACER
206-872		OPERATING GUIDE
220-529		PACKING MATERIAL
220-529-01		PACKING MATERIAL
220-557		PACKING MATERIAL
		HARDWARE
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
112-2222		6-20X9/16 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE
112-2347		8-18X7/16 SLOTTED PAN HD THD FORM SCREW,TP B,BLK OXIDE (2 REQ)
112-2364		6-32X1/2 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
114-1074		6-20X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)

BLACK & WHITE TV SERVICE NUMBER BT051 B1

PART NO	REF CODE	DESCRIPTION
		CHASSIS
5NB4X		CHASSIS (SEE 5NB4X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-9042		AC POWER SUPPLY ADAPTER
A-9107-01		TV FINE TUNING KNOB
A-9108-02		VOLUME CONTROL KNOB
A-9110-05		CABINET FRONT & TRIM ASSEMBLY
A-9130-01		LEFT SIDE CABINET ASSEMBLY
1-140-01		MONOPOLE ANTENNA
11-345		DC POWER CORD (136-132 FUSE)
14-11406-01		CABINET REAR
39-56-01		EARPHONE
46-10339		PUSH BUTTON KNOB (5 REQ ON, OFF, VHF LO, VHF HI & UHF)
49-1314-01		3 1/2" ROUND SPEAKER
		CRT (5VAHP4)
		VOLUME CONTROL & BRACKET ASSEMBLY
A-9828		SHAFT ASSEMBLY
A-12443		CABLE & CONNECTOR HSG ASSEM (F22)
A-12444		CABLE & CONNECTOR HSG ASSEM (F20)
A-12445		CABLE & CONNECTOR HSG ASSEM (F17)
A-12446		CABLE & CONNECTOR HSG ASSEM (F18)
A-12600		CABLE & CONNECTOR HSG ASSEM (F26)
S-89003-16		DIAL CORD ASSEMBLY
12-7625-01		MAIN CONTROL BRACKET
12-7915		"U" CHANNEL BRACKET
20-3907-03		RCF COIL
26-2557-06		VHF-UHF DRUM DIAL SCALE
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F17, 86-648 TERM)
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F18, 86-648 TERM)
43-1766-02		4 POSITION SPRING TERM CONNECTOR HSG (F26, 86-648 TERM)
43-1766-04		6 POSITION SPRING TERM CONNECTOR HSG (F20,F22, 86-648 TERM)
54-989		M9X1.0 HEX MACHINE NUT
63-10866		TV TUNING CONTROL
63-10873		VOLUME CONTROL
78-2239		EARPHONE JACK
79-317-16		HEAT SHRINKABLE SLEEVING (3 REQ)
80-2386-01		DIAL CORD TENSION SPRING
85-1581-01		PUSH-BUTTON SWITCH
86-648		SPRING TERMINAL
114-602		4-24X1/4X3/16AF HEX HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
		A-12160 CABINET RIGHT SIDE ASSEMBLY COMPONENTS
A-12435		CABLE & HOUSING ASSY (F15)
12-7050		SWITCH MTG PLATE
30-931-01		SIDE OVERLAY
43-1728		ANTENNA HOUSING
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F15, 86-648 TERM)
54-854		PALNUT CAP FASTENER
64-1037-01		RIVET (2 REQ)
85-1589		LEAF SWITCH
86-648		SPRING TERMINAL
86-766		BATTERY TERMINAL (3 REQ)
86-768		ANTENNA TERMINAL
127-196		FORMED WIRE CONTACT (3 REQ)

PART NO	REF CODE	DESCRIPTION
		ANTENNA TERMINAL STRIP ASSEMBLY
A-9118		INT/EXT SWITCH & TERMINAL ASSEMBLY
52-2472-01		75Ω COAX CABLE (13")
52-2472-02		75Ω COAX CABLE (9")
86-411-01		ANTENNA TERMINAL SCREW (2 REQ)
95-3508		BALUN TRANSFORMER
		A-12432 DEFLECTION YOKE ASSEMBLY
A-12441		CABLE & HOUSING ASSEMBLY (F24)
A-12453		CABLE & HOUSING ASSY (F23)
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F23,F24, 86-648 TERM)
86-648		SPRING TERMINAL

REF #	HOUSING PART #	# OF POS.	TERMINAL PART #	PART OF ASSEMBLY #
			CONNECTOR REFERENCE DESIGNATION OF CABLE & HOUSING ASSEMBLIES, HOUSINGS & PLUGS	
F15	43-1766-01	3	86-648	A-12435
F17	43-1766	2	86-648	A-12445
F18	43-1766-01	3	86-648	A-12446
F20	43-1766-04	6	86-648	A-12444
F22	43-1766-04	6	86-648	A-12443
F23	43-1766	2	86-648	A-12453
F24	43-1766	2	86-648	A-12441
F26	43-1766-02	4	86-648	A-12600

PART NO	REF CODE	DESCRIPTION
		MINOR COMPONENTS
16-5132		PACKING CARTON
19-733-01		3 4/5" CABLE TIE (5 REQ)
19-950		SPKR RETAINER CLIP
33-698		CRT RETAINING FRAME
54-954		M8X3/4 SLOTTED MACHINE NUT
83-8066-02		CABLE RETAINER WIRE TIE
86-256		SHAKEPROOF LOCKING TERMINAL
166-234		FOOT BUMPER (4 REQ)
194-824		BATTERY POSITION SPACER
206-872		OPERATING GUIDE
220-529		PACKING MATERIAL
220-529-01		PACKING MATERIAL
220-557		PACKING MATERIAL
		HARDWARE
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
112-2222		6-20X9/16 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE
112-2347		8-18X7/16 PAN HD SLOTTED THD FORM SCREW,TP B,BLK OXIDE (2 REQ)
112-2364		6-32X1/2 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
114-1074		6-20X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)

BLACK & WHITE TV SERVICE NUMBER BT052S

PART NO	REF CODE	DESCRIPTION
		CHASSIS
5NB2X		CHASSIS (SEE 5NB2X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-9042		AC POWER SUPPLY ADAPTER
A-9107		TV TUNING KNOB
A-9108		RADIO TUNING KNOB
A-9108-01		SELECTOR KNOB
A-9109		VOLUME CONTROL KNOB
A-9110-03		CABINET FRONT & TRIM ASSEMBLY
A-9130		CABINET LEFT SIDE ASSEMBLY
1-140-01		MONOPOLE ANTENNA
5-124		BATTERY, AA CELL,1.5V
11-345		DC POWER CORD (136-132 FUSE)
14-11406		CABINET REAR
39-56-01		EARPHONE
46-10339		FRONT CONTROL PANEL PUSH-BUTTON KNOB (5 REQ)
46-10340		DIAL LIGHT PUSH-BUTTON KNOB
46-10341		SLEEP SNOOZE CANCEL & SLEEP PUSH-BUTTON KNOB (2 REQ)
46-10344-01		TIME-SET/NORM/WAKE-SET SLIDE KNOB
49-1814-01		3 1/2" ROUND SPEAKER
		CRT (5VAHP4)
		RADIO & CLOCK COMPONENTS
A-11182		VOLUME & FUNCTION CONTROLS, RADIO & DIAL DRUM ASSEMBLY (SEE A-11182 PARTS LIST FOR COMPONENTS)
A-12447		CABLE & HOUSING ASSEMBLY (F19)
A-12448		CABLE & HOUSING ASSY (F25)
20-4032		RCF COIL (2 REQ)
22-5251		.15μF CERAMIC DISC CAP ±20% 10V
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F25, 86-648 TERM)
43-1766-02		4 POSITION SPRING TERM CONNECTOR HSG (F19, 86-648 TERM)
63-10235-90		5.6KΩ FILM RES. 5% 1/4W (2 REQ)
79-317-12		1/4" DIAMETER HEAT SHRINKABLE SLEEVING (8 REQ)
80-2433		SLIDE SWITCH DETENTE SPRING
85-1581		FRONT CONTROL PANEL SWITCH
85-1582		TIME-SET/NORM/WAKE-SET SLIDE SWITCH
85-1583		SLEEP SNOOZE CANCEL & SLEEP PUSH-BUTTON SWITCH (2 REQ)
85-1597		DIAL LIGHT PUSH-BUTTON SWITCH
86-648		SPRING TERMINAL
112-1402		4-24X1/4 RECESSED CROSS-CUT THD CUT SCREW,TP BT,STAT BRNZ (3 REQ)
114-602		4-24X1/4X3/16AF HEX HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
126-2032		CLOCK SHIELD
172-82-01		CLOCK LCD DISPLAY
192-686		LIGHT INDICATOR LENS (PIPE TYPE)
		A-11182 VOLUME & FUNCTION CONTROLS, RADIO & DIAL DRUM ASSEMBLY
A-8784		AM/FM RADIO & TUNER ASSY (SEE A-8784 PARTS LIST FOR COMPONENTS)
A-9118		INT/EXT SWITCH & TERMINAL ASSY
A-9828		SHAFT ASSEMBLY (2 REQ)
A-9829		SHAFT ASSEMBLY
A-11683		ANTENNA PCB ASSEMBLY (SEE A-11683 PARTS LIST FOR COMPONENTS
A-12436		CABLE & CONNECTOR HSG ASSEM (F17)
A-12437		CABLE & CONNECTOR HSG ASSEM (F18)
A-12439		CABLE & CONNECTOR HSG ASSEM (F21)
A-12440		CABLE & CONNECTOR HSG ASSEM (F22)
A-12449		CABLE & CONNECTOR HSG ASSEM (F27)
A-12598		CABLE & CONNECTOR HSG ASSEM (F20)
A-12599		CABLE & CONNECTOR HSG ASSEM (F26)
S-89003-15		DIAL CORD ASSEMBLY (27" LONG)
S-89003-16		DIAL CORD ASSEMBLY (11 3/8" LONG)
12-7625		MAIN CONTROL BRACKET
12-7816		PULLEY MTG BRACKET
19-923		ANTENNA CLAMP
22-7614-12		1000pF CERAMIC DISC CAP 20% 50V
26-2557-01		RADIO DIAL DRUM DIAL SCALE
26-2557-04		VHF-UHF DRUM DIAL SCALE
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F17,F27, 86-648 TERM)
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F18, 86-648 TERM)
43-1766-02		4 POSITION SPRING TERM CONNECTOR HSG (F26, 86-648 TERM)
43-1766-04		6 POSITION SPRING TERM CONNECTOR HSG (F21,F22, 86-648 TERM)
43-1766-16		8 POSITION SPRING TERM CONNECTOR HSG (F20, 86-648 TERM)
52-2472-02		75Ω COAX CABLE (9")
54-250		6-32X5/16AFX.109THK HEX MACHINE NUT, CADMIUM
54-989		M9X1 HEX MACHINE NUT (3 REQ)
61-263		IDLER PULLEY (4 REQ)
61-395		PULLEY
63-10243-38		39Ω FILM RES. 5% 1/2W
63-10243-40		47Ω FILM RES. 5% 1/2W
63-10866		TV/RADIO TUNING CONTROL
63-10873		VOLUME CONTROL
75-2239		EARPHONE JACK
79-91-08		#18 BLACK EXTRUDED SLEEVING (3 REQ)
80-2386		DIAL CORD TENSION SPRING
80-2386-01		DIAL CORD TENSION SPRING
85-1580		SELECTOR SWITCH
86-411-01		SCREW BINDING TERMINAL (2 REQ)
86-648		SPRING TERMINAL
95-3508		BALUN TRANSFORMER
97-943		SHOULDER STUD (4 REQ)
112-2317-02		M2.6-.45X7MM LG RECESSED CROSS-CUT AN HD W/WASHER MACHINE SCREW
114-172		6-32X1/2X1/4AF HEX HD MACHINE SCREW, CADMIUM PLATED
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (5 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
194-801		ANTENNA INSULATING STRIP
		A-11683 ANTENNA PCB ASSEMBLY
20-3907-03		RCF COIL
22-7503-01		820pF LEADLESS DISC CAP +80%-20% 400V
52-2472-10		75 OHM COAX CABLE (16 1/2")
52-2472-11		75Ω COAX CABLE (20 1/2")
63-10235-45		75Ω FILM RES. 5% 1/4W
63-10235-56		220Ω FILM RES. 5% 1/4W
63-10235-72		1KΩ FILM RES. 5% 1/4W (2 REQ)
64-1153-03		ROLLED FLANGE EYELET (2 REQ)
103-306		SWITCHING DIODE (2 REQ)
		A-8784 AM/FM RADIO TUNER ASSEMBLY
A-7177-01		AM ANTENNA ASSEMBLY (L101)
20-1631		TRAP COIL (L3)
20-3844		COIL, RCF (L2)
20-3845		COIL, RCF (L4)
20-3846		COIL, RCF (L1)
20-3907-03		COIL, RCF
22-3405		2.7pF GIMMICK CAP ±5% 500V (C8)
22-3541		3.3pF GIMMICK CAP 5% 500V (C5)
22-3652		0.1μF CERAMIC DISC CAP +80% -20% 10V (C226)
22-7151-08		100μF ELECTROLYTIC CAP +100% -10% 16V (C223)
22-7152-03		4.7μF ELECTROLYTIC +100% -10% 25V (2 REQ C108 C222)
22-7273		1pF GIMMICK CAP 10% 500V (3 REQ C205, C210, C225)
22-7613-07		390pF CERAMIC DISC CAP 10% 50V (3 REQ C6, C218, C219)
22-7613-08		470pF CERAMIC DISC CAP 10% 50V (2 REQ C17, C109)
22-7613-09		560pF CERAMIC DISC CAP 10% 50V (2 REQ C208, C224)
22-7613-12		1000pF CERAMIC DISC CAP 10% 50V (2 REQ C3, C217)
22-7613-20		4700pF CERAMIC DISC CAP 10% 50V (3 REQ C4, C9, C12)
22-7613-24		10000pF CERAMIC DISC CAP 10% 50V (8 REQ C102, C105, C110, C211, C212, C213, C215, C221)
22-7615-08		22000pF CERAMIC DISC CAP +80% -20% 50V (2 REQ C106, C214)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (8 REQ C11, C13, C103, C204, C206, C207, C209, C216)
22-7620-12		12pF CERAMIC DISC CAP 10% 50V (C220)
22-7621-16		18pF CERAMIC DISC CAP 5% 50V (C14)
22-7621-17		20pF CERAMIC DISC CAP 5% 50V (C7)
22-7621-21		30pF CERAMIC DISC CAP 5% 50V (C2)
22-7631-06		7pF CERAMIC DISC CAP 0.25pF 50V (C16)
22-7636-07		8pF CERAMIC DISC CAP 0.5pF 50V (C107)
22-7639-02		4pF CERAMIC DISC CAP 0.25pF 50V (C10)
22-7639-11		13pF CERAMIC DISC CAP 5% 50V (C15)
22-7648-05		8pF CERAMIC DISC CAP 0.5pF 50V (C104)
22-7675		TUNING GANG CAPACITOR (C1)
22-7840-05		3pF CERAMIC DISC CAP 0.25pF 50V
58-403-04		6 PIN MALE CONNECTOR HOUSING
63-10235-36		33Ω FILM RES. 5% 1/4W (R16)
63-10235-40		47Ω FILM RES. 5% 1/4W (R3)
63-10235-48		100Ω FILM RES. 5% 1/4W (2 REQ R8, R220)
63-10235-50		120Ω FILM RES. 5% 1/4W (R217)
63-10235-54		180Ω FILM RES. 5% 1/4W (R227)
63-10235-56		220Ω FILM RES. 5% 1/4W (R205)
63-10235-58		270Ω FILM RES. 5% 1/4W (R214)
63-10235-60		330Ω FILM RES. 5% 1/4W (R15)
63-10235-62		390Ω FILM RES. 5% 1/4W (2 REQ R210, R228)
63-10235-64		470Ω FILM RES. 5% 1/4W (2 REQ R12, R107)
63-10235-66		560Ω FILM RES. 5% 1/4W (R213)
63-10235-68		680Ω FILM RES. 5% 1/4W (3 REQ R108, R215, R226)
63-10235-70		820Ω FILM RES. 5% 1/4W (R207)

BLACK & WHITE TV SERVICE NUMBER BT052S (Cont)

PART NO	REF CODE	DESCRIPTION
63-10235-72		1Kn FILM RES. 5% 1/4W (2 REQ R221, R222)
63-10235-76		1500n FILM RES. 5% 1/4W (R106)
63-10235-78		1800n FILM RES. 5% 1/4W (R4)
63-10235-80		2200n FILM RES. 5% 1/4W (3 REQ R112, R206, R216)
63-10235-82		2700n FILM RES. 5% 1/4W (R208)
63-10235-85		3600n FILM RES. 5% 1/4W
63-10235-86		3900n FILM RES. 5% 1/4W (R10)
63-10235-88		4700n FILM RES. 5% 1/4W (5 REQ R7, R109, R218, R223, R224)
63-10235-90		5600n FILM RES. 5% 1/4W (R209)
63-10235-96		10Kn FILM RES. 5% 1/4W (2 REQ R11, R17)
63-10235-98		12Kn FILM RES. 5% 1/4W (R225)
63-10236-04		22Kn FILM RES. 5% 1/4W (R110)
63-10236-06		27Kn FILM RES. 5% 1/4W (R9)
63-10236-08		33Kn FILM RES. 5% 1/4W (R211)
63-10236-12		47Kn FILM RES. 5% 1/4W (2 REQ R14, R111)
63-10236-18		82Kn FILM RES. 5% 1/4W (R212)
63-10236-28		220Kn FILM RES. 5% 1/4W (R2)
63-10236-36		470Kn FILM RES. 5% 1/4W (R13)
63-10236-42		820Kn FILM RES. 5% 1/4W (R5)
63-10236-44		1MEGn FILM RES. 5% 1/4W (R1)
79-180-32		#1 CLEAR EXTRUDED SLEEVE
79-317-04		HEAT SHRINK SLEEVE
86-596-02		TERMINAL, INSERT PIN
95-3336		TRANSFORMER, RCF TUNABLE (2 REQ T101, T102)
95-3337		TRANSFORMER, RCF TUNABLE (3 REQ T1, T207, T208)
95-3338		TRANSFORMER, RCF TUNABLE (T203)
95-3339		TRANSFORMER, RCF TUNABLE (T205)
95-3339-01		TRANSFORMER, RCF TUNABLE (T206)
95-3340		TRANSFORMER, RCF TUNABLE (T204)
95-3341		TRANSFORMER, RCF TUNABLE (T103)
103-23		DIODE, HIGH FREQUENCY (CR203)
103-47		DIODE, VARIABLE CAPACITANCE (CR1)
103-90		DIODE, MATCHED PAIR (2 REQ CR210, CR202)
103-142-01		DIODE, LOW VOLT (CR101)
112-2317		M2.6X0.45X5MM LG RECESSED CROSS-CUT PAN HD SCREW, STAT BRNZ (2 REQ)
121-950		TRANSISTOR, NPN (3 REQ, IF AMP Q201, Q202, Q203)
121-1044		TRANSISTOR, NPN (FM CONVERTER Q2)
121-1045		TRANSISTOR, NPN (AM CONVERTER Q101)
121-1048		TRANSISTOR, FIELD EFFECT (N CHANNEL Q1)
121-1051		TRANSISTOR, NPN (AGC AMP Q3)
126-1977		SHIELD, TRANSISTOR (2 REQ)
149-311		IRON CORE (L102)
149-417		FERRITE CORE, SLEEVE (L5)
224-1		FILTER, CERAMIC (Y201)
A-9111 CABINET RIGHT SIDE ASSEMBLY		
A-9111 CABINET RIGHT SIDE ASSEMBLY		
12-7050		SWITCH MTG PLATE
30-931		CONTROL PANEL OVERLAY
43-1728		ANTENNA HOUSING
54-854		PALNUT CAP FASTENER
85-1589		LEAF SWITCH
86-766		BATTERY CENTER TERMINAL (3 REQ)
86-767-01		BATTERY BLADE TERMINAL
86-768		ANTENNA TERMINAL
127-196		FORMED WIRE CONTACT (3 REQ)
127-248		SPRING CONTACT
A-12432 DEFLECTION YOKE ASSEMBLY		
A-12441		CABLE & HOUSING ASSY (F24)
A-12453		CABLE & HOUSING ASSY (F23)
43-1766		2 POSITION SPRING TERM CONNECTOR HSG (F23,F24, 86-648 TERM)
86-648		SPRING TERMINAL

CONNECTOR REFERENCE DESIGNATION OF CABLE & HOUSING ASSEMBLIES, HOUSINGS & PLUGS

REF #	HOUSING PART #	# OF POS.	TERMINAL PART #	PART OF ASSEMBLY #
F15	43-1766-01	3	86-648	A-12435
F17	43-1766	2	86-648	A-12436
F18	43-1766-01	3	86-648	A-12437
F19	43-1766-02	4	86-648	A-12447
F20	43-1766-16	8	86-648	A-12598
F21	43-1766-04	6	86-648	A-12439
F22	43-1766-04	6	86-648	A-12440
F23	43-1766	2	86-648	A-12453
F24	43-1766	2	86-648	A-12441
F25	43-1766	2	86-648	A-12448
F26	43-1766-02	4	86-648	A-12599
F27	43-1766	2	86-648	A-12449

PART NO	REF CODE	DESCRIPTION
MINOR COMPONENTS		
A-12435		CABLE & HOUSING ASSY (F15)
16-5111		PACKING CARTON
19-733-01		3 4/5" CABLE TIE (15 REQ)
19-950		SPKR RETAINING CLIP
33-698		CRT RETAINING FRAME
43-1766-01		3 POSITION SPRING TERM CONNECTOR HSG (F15, 86-648 TERM)
54-854		PALNUT CAP FASTENER (P/O A-9130)
63-1830		12Kn RES. 5% 1/2W
79-317-12		1/4" DIAMETER HEAT SHRINKABLE SLEEVING (4 REQ)
83-8066-02		WIRE TIE (4 REQ)
86-256		SHAKEPROOF TERMINAL
86-648		SPRING TERMINAL
166-234		FOOT BUMPER (4 REQ)
194-824		BATTERY POSITION SPACER
194-1034		INSULATING STRIP
206-871		OPERATING GUIDE
220-529		PACKING MATERIAL
220-529-01		PACKING MATERIAL
220-532		PACKING MATERIAL
HARDWARE		
54-954		M8X3/4 ROUND SLOTTED MACHINE NUT
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
112-2222		6-20X9/16 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE
112-2347		8-18X7/16 SLOTTED PAN HD THD FORM SCREW,TP B,BLK OXIDE (2 REQ)
112-2364		6-32X1/2 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,BLK OXIDE (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (2 REQ)
114-1074		6-20X1/2X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT052S1

PART NO	REF CODE	DESCRIPTION
		CHASSIS
5NB1X		CHASSIS (SEE 5NB1X PARTS LIST FOR COMPONENTS)
		PRINCIPAL COMPONENTS
A-9042		AC POWER SUPPLY ADAPTER
A-9107		TV TUNING KNOB
A-9108		RADIO TUNING KNOB
A-9108-01		SELECTOR KNOB
A-9109		VOLUME/CONTROL KNOB
A-9110-03		CABINET FRONT & TRIM ASSEMBLY
A-9130		CABINET, LEFT SIDE ASSEMBLY
1-140-01		VHF MONOPOLE ANTENNA
		BATTERY 1.5V AA CELL (NON-STOCK)
11-345		DC POWER CORD (136-132 FUSE)
14-11406		CABINET REAR
39-56-01		EARPHONE, PLUG AND CABLE
46-10339		PUSH-BUTTON KNOB (5 REQ ON, OFF, AUTO, ALARM & SNOOZE)
46-10340		DIAL LIGHT PUSH-BUTTON KNOB
46-10341		SLEEP SNOOZE CANCEL & SLEEP PUSH-BUTTON KNOB (2 REQ)
46-10344-01		TIME-SET/NORM/WAKE-SET SLIDE KNOB
49-1314-01		SPEAKER (3 1/2" ROUND)
136-132		FUSE (PART OF 11-345 DC CORD)
		CRT (5BAHP4)
		CONTROL PANEL COMPONENTS
A-12161		VOLUME, RADIO TUNER & DIAL DRUM ASSEMBLY (SEE A-12161 PARTS LIST FOR COMPONENTS)
A-12447		CABLE & HOUSING ASSEMBLY (F19)
A-12448		CABLE & HOUSING ASSEMBLY (F25)
19-733-01		CABLE RETAINING TIE (4 REQ, 3 3/4")
20-4032		COIL, RCF (2 REQ, 1 PART OF A-12447)
22-5251		0.15μF CERAMIC DISC CAP 20% 10V
43-1766		2 POSITION FEMALE CONNECTOR HOUSING (F25, 86-648 TERM)
43-1766-02		4 POSITION FEMALE CONNECTOR HOUSING (F19, 86-648 TERM)
63-10235-90		5600Ω FILM RESISTOR 5% 1/4W (2 REQ)
79-317-05		HEAT SHRINK SLEEVE
80-2433		DETENT SPRING, SLIDE SWITCH
85-1581		FRONT CONTROL PANEL SWITCH (5 FUNCTION PUSH-BUTTON)
85-1582		TIME-SET/NORM/WAKE-SET SLIDE SWITCH
85-1583		SLEEP SNOOZE CANCEL & SLEEP PUSH-BUTTON SWITCH (2 REQ)
85-1597		DIAL LIGHT PUSH-BUTTON SWITCH
86-648		SPRING TERMINAL
112-1402		4-24X1/4"LG RECESSED CROSS-CUT RD HD THD CUT SCREW, TP B STAT BRNZ (3 REQ)
114-602		4-24X1/4X3/16AF HEX HD THD FORM SCREW, TP B STAT BRNZ (2 REQ)
126-2032		SHIELD, CLOCK
172-82-01		CLOCK, LCD L, LCD
192-686		LENS, LIGHT PIPE
		A-12161 VOLUME, RADIO TUNER & DIAL DRUM ASSEMBLY
A-8784		AM/FM RADIO TUNER ASSEMBLY (SEE A-8784 PARTS LIST FOR COMPONENTS)
A-9828		SHAFT ASSEMBLY, HOLLOW (2 REQ)
A-9829		SHAFT ASSEMBLY, DIAL DRUM
A-12436		CABLE & HOUSING ASSEMBLY (F17)
A-12437		CABLE & HOUSING ASSEMBLY (F18)
A-12438		CABLE & HOUSING ASSEMBLY (F20)
A-12439		CABLE & HOUSING ASSEMBLY (F21)
A-12440		CABLE & HOUSING ASSEMBLY (F22)
A-12442		CABLE & HOUSING ASSEMBLY (F26)
S-89003-15		DIAL CORD ASSEMBLY (27" LONG)
S-89003-16		DIAL CORD ASSEMBLY (11 3/8" LONG)
12-7625		MAIN MTG BRACKET
12-7816		PULLEY MTG BRACKET
19-733-01		CABLE RETAINING TIE (3 3/4") 6 REQ
19-923		ANTENNA CLAMP
20-3907-03		COIL, RCF
22-7614-12		1000pF CERAMIC DISC CAP 20% 50V
26-2557-01		RADIO DIAL SCALE
26-2557-07		TV DIAL SCALE
43-1766		2 POSITION FEMALE CONNECTOR HOUSING (F17, 86-648 TERM)
43-1766-01		3 POSITION FEMALE CONNECTOR HOUSING (F18, 86-648 TERM)
43-1766-02		4 POSITION FEMALE CONNECTOR HOUSING (F26, 86-648 TERM)
43-1766-04		6 POSITION FEMALE CONNECTOR HSG (3 REQ, F20,F21,F22, 86-648 TERM)
52-2525		75Ω COAX CABLE (13")
52-2525-02		75Ω COAX CABLE (11")
52-2525-03		75Ω COAX CABLE (14 1/2")
54-250		6-32X3/6AFX0.109THK CADMIUM HEX MACH NUT
54-989		M9X1 HEX MACH NUT (3 REQ)
61-263		IDLER PULLEY (4 REQ)
61-395		DRIVE PULLEY
63-10866		TV/RADIO TUNING CONTROL
63-10873		VOLUME CONTROL
78-2239		EARPHONE JACK
79-91-32		#18 BLACK EXTRUDED SLEEVE
80-2386		TENSION SPRING, RADIO DIAL CORD
80-2386-01		TENSION SPRING, TV DIAL CORD
85-1580		SELECTOR SWITCH
86-648		SPRING TERMINAL
97-943		SHOULDER STUD, THREADED (4 REQ)
112-2317-02		M2.6-0.45X7MM LG RECESSED CROSS-CUT MACH SCREW
114-172		6-32X1/2X1/4AF HEX HD MACH SCREW, CADMIUM
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRNZ (5 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRNZ (2 REQ)
194-801		INSULATING STRIP, ANTENNA
		A-8784 AM/FM RADIO TUNER ASSEMBLY
A-7177-01		AM ANTENNA ASSEMBLY (L101)
20-1631		TRAP COIL (L3)
20-3844		COIL, RCF (L2)
20-3845		COIL, RCF (L4)
20-3846		COIL, RCF (L1)
20-3907-03		COIL, RCF
22-3405		2.7pF GIMMICK CAP ±5% 500V (C8)
22-3541		3.3pF GIMMICK CAP 5% 500V (C5)
22-3652		0.1μF CERAMIC DISC CAP +80% -20% 10V (C226)
22-7151-08		100μF ELECTROLYTIC CAP +100% -10% 16V (C223)
22-7152-03		4.7μF ELECTROLYTIC +100% -10% 25V (2 REQ C108 C222)
22-7273		1pF GIMMICK CAP 10% 500V (3 REQ C205, C210, C225)
22-7613-07		390pF CERAMIC DISC CAP 10% 50V (3 REQ C6, C218, C219)
22-7613-08		470pF CERAMIC DISC CAP 10% 50V (2 REQ C17, C109)
22-7613-09		560pF CERAMIC DISC CAP 10% 50V (2 REQ C208, C224)
22-7613-12		1000pF CERAMIC DISC CAP 10% 50V (2 REQ C3, C217)
22-7613-20		4700pF CERAMIC DISC CAP 10% 50V (3 REQ C4, C9, C12)
22-7613-24		10000pF CERAMIC DISC CAP 10% 50V (8 REQ C102, C105, C110, C211, C212, C213, C215, C221)
22-7615-08		22000pF CERAMIC DISC CAP +80% -20% 50V (2 REQ C106, C214)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (8 REQ C11, C13, C103, C204, C206, C207, C209, C216)
22-7620-12		12pF CERAMIC DISC CAP 10% 50V (C220)
22-7621-16		18pF CERAMIC DISC CAP 5% 50V (C14)
22-7621-17		20pF CERAMIC DISC CAP 5% 50V (C7)
22-7621-21		30pF CERAMIC DISC CAP 5% 50V (C2)
22-7631-06		7pF CERAMIC DISC CAP 0.25pF 50V (C16)
22-7636-07		8pF CERAMIC DISC CAP 0.5pF 50V (C107)
22-7639-02		4pF CERAMIC DISC CAP 0.25pF 50V (C10)
22-7639-11		13pF CERAMIC DISC CAP 5% 50V (C15)
22-7648-05		8pF CERAMIC DISC CAP 0.5pF 50V (C104)
22-7675		TUNING GANG CAPACITOR (C1)
22-7840-05		3pF CERAMIC DISC CAP 0.25pF 50V
58-403-04		6 PIN MALE CONNECTOR HOUSING
63-10235-36		33Ω FILM RES. 5% 1/4W (R16)
63-10235-40		47Ω FILM RES. 5% 1/4W (R3)
63-10235-48		100Ω FILM RES. 5% 1/4W (2 REQ R8, R220)
63-10235-50		120Ω FILM RES. 5% 1/4W (R217)
63-10235-54		180Ω FILM RES. 5% 1/4W (R227)
63-10235-56		220Ω FILM RES. 5% 1/4W (R205)
63-10235-58		270Ω FILM RES. 5% 1/4W (R214)
63-10235-60		330Ω FILM RES. 5% 1/4W (R15)
63-10235-62		390Ω FILM RES. 5% 1/4W (2 REQ R210, R228)
63-10235-64		470Ω FILM RES. 5% 1/4W (2 REQ R12, R107)
63-10235-66		560Ω FILM RES. 5% 1/4W (R213)
63-10235-68		680Ω FILM RES. 5% 1/4W (3 REQ R108, R215, R226)
63-10235-70		820Ω FILM RES. 5% 1/4W (R207)
63-10235-72		1KΩ FILM RES. 5% 1/4W (2 REQ R221, R222)
63-10235-76		1500Ω FILM RES. 5% 1/4W (R106)
63-10235-78		1800Ω FILM RES. 5% 1/4W (R4)
63-10235-80		2200Ω FILM RES. 5% 1/4W (3 REQ R112, R206, R216)
63-10235-82		2700Ω FILM RES. 5% 1/4W (R208)
63-10235-85		3600Ω FILM RES. 5% 1/4W
63-10235-86		3900Ω FILM RES. 5% 1/4W (R10)
63-10235-88		4700Ω FILM RES. 5% 1/4W (5 REQ R7, R109, R218, R223, R224)
63-10235-90		5600Ω FILM RES. 5% 1/4W (R209)
63-10235-96		10KΩ FILM RES. 5% 1/4W (2 REQ R11, R17)
63-10235-98		12KΩ FILM RES. 5% 1/4W (R225)
63-10236-04		22KΩ FILM RES. 5% 1/4W (R110)
63-10236-06		27KΩ FILM RES. 5% 1/4W (R9)

BLACK & WHITE TV SERVICE NUMBER BT052S1 (Cont.)

PART NO	REF CODE	DESCRIPTION
63-10236-08		33KΩ FILM RES. 5% 1/4W (R211)
63-10236-12		47KΩ FILM RES. 5% 1/4W (2 REQ R14, R111)
63-10236-18		82KΩ FILM RES. 5% 1/4W (R212)
63-10236-28		220KΩ FILM RES. 5% 1/4W (R2)
63-10236-36		470KΩ FILM RES. 5% 1/4W (R13)
63-10236-42		820KΩ FILM RES. 5% 1/4W (R5)
63-10236-44		1MEGΩ FILM RES. 5% 1/4W (R1)
79-180-32		#1 CLEAR EXTRUDED SLEEVE
79-317-04		HEAT SHRINK SLEEVE
86-596-02		TERMINAL, INSERT PIN
95-3336		TRANSFORMER, RCF TUNABLE (2 REQ T101, T102)
95-3337		TRANSFORMER, RCF TUNABLE (3 REQ T1, T207, T208)
95-3338		TRANSFORMER, RCF TUNABLE (T203)
95-3339		TRANSFORMER, RCF TUNABLE (T205)
95-3339-01		TRANSFORMER, RCF TUNABLE (T206)
95-3340		TRANSFORMER, RCF TUNABLE (T204)
95-3341		TRANSFORMER, RCF TUNABLE (T103)
103-23		DIODE, HIGH FREQUENCY (CR203)
103-47		DIODE, VARIABLE CAPACITANCE (CR1)
103-90		DIODE, MATCHED PAIR (2 REQ CR210, CR202)
103-142-01		DIODE, LOW VOLT (CR101)
112-2317		M2.6X0.45X5MM LG RECESSED CROSS-CUT PAN HD SCREW, STAT BRNZ (2 REQ)
121-950		TRANSISTOR, NPN (3 REQ, IF AMP Q201, Q202, Q203)
121-1044		TRANSISTOR, NPN (FM CONVERTER Q2)
121-1045		TRANSISTOR, NPN (AM CONVERTER Q101)
121-1048		TRANSISTOR, FIELD EFFECT (N CHANNEL Q1)
121-1051		TRANSISTOR, NPN (AGC AMP Q3)
126-1977		SHIELD, TRANSISTOR (2 REQ)
149-311		IRON CORE (L102)
149-417		FERRITE CORE, SLEEVE (L5)
224-1		FILTER, CERAMIC (Y201)
A-9111 CABINET RIGHT SIDE ASSEMBLY		
12-7050		SWITCH MTG PLATE
30-931		OVERLAY, CONTROLS
43-1728		ANTENNA HOUSING
54-854		PALNUT CAP FASTENER
85-1589		LEAF SWITCH
86-648		SPRING TERMINAL
86-766		TERMINAL (3 REQ)
86-767-01		TERMINAL
127-196		CONTACT, FORMED WIRE (3 REQ)
127-248		CONTACT, CONICAL SPRING
ANTENNA TERMINAL STRIP COMPONENTS		
A-9118		INT/EXT SWITCH & TERMINAL STRIP ASSEM
52-2472-01		75Ω COAX CABLE (13")
52-2472-02		75Ω COAX CABLE (9")
83-9181		2 LUG TERMINAL STRIP
85-1603		SLIDE SWITCH
86-411-01		ANTENNA TERMINAL SCREW (2 REQ)
95-3508		TRANSFORMER, BALUN
A-12432 DEFLECTION YOKE ASSEMBLY		
A-12435		CABLE & HOUSING ASSEMBLY (F15)
A-12441		CABLE & HOUSING ASSEMBLY (F24)
A-12453		CABLE & HOUSING ASSEMBLY (F23)
43-1766		2 POSITION FEMALE CONNECTOR HOUSING (2 REQ, F23 & F24, 86-648 TERM)
86-648		SPRING TERMINAL

CONNECTOR REFERENCE DESIGNATION OF CABLE & HOUSING ASSEMBLIES, HOUSINGS & PLUGS

REF #	HOUSING PART #	# OF POS.	TERMINAL PART #	PART OF ASSEMBLY #
F15	43-1766-01	3	86-648	A-12435
F17	43-1766	2	86-648	A-12436
F18	43-1766-01	3	86-648	A-12437
F19	43-1766-02	4	86-648	A-12447
F20	43-1766-04	6	86-648	A-12438
F21	43-1766-04	6	86-648	A-12439
F22	43-1766-04	6	86-648	A-12440
F23	43-1766	2	86-648	A-12453
F24	43-1766	2	86-648	A-12441
F25	43-1766	2	86-648	A-12448
F26	43-1766-02	4	86-648	A-12442

PART NO	REF CODE	DESCRIPTION
MINOR COMPONENTS		
A-9117		PACKING CARTON
12-7645		CHASSIS MTG BRACKET (2 PART OF A-9110-03)
12-7822		SUPPORT BRACKET (PART OF A-9110-03)
15-286-02		END CAP, HANDLE (2 PART OF A-9110-03)
19-733-01		CABLE RETAINING TIE (3 3/4") 5 REQ
19-950		SPEAKER RETAINING CLIP
19-980		HANDLE MTG CLIP (2 PART OF A-9110-03)
30-932-02		OVERLAY, CABINET (PART OF A-9110-03)
33-698		FRAME, CRT RETAINING
36-822		HANDLE (PART OF A-9110-03)
43-1766-01		3 POSITION FEMALE CONNECTOR HOUSING (F15, 86-648 TERM)
54-954		NUT, MACHINE ROUND, SLOTTED
63-1830		12KΩ RES. 5% 1/2W
83-8066-02		CABLE RETAINING TIE (4 REQ)
86-256		SHAKE-PROOF TERM (USED WITH 63-1830)
86-648		SPRING TERMINAL
86-768		ANTENNA TERMINAL CLIP
166-234		BUMPER, FOOT (4 REQ)
194-824		SPACER, BATTERY POSITION
194-1034		INSULATING STRIP
206-683		INSTRUCTION SHEET (AA BATTERY)
206-871		OPERATING GUIDE
HARDWARE		
54-854		PALNUT CAP FASTENER
112-1139		6-20X1/2"LG RECESSED CROSS-CUT PAN HD THD CUT SCREW, TP BT STAT BRNZ (2 REQ)
112-2222		6-20X9/16"LG RECESSED CROSS-CUT PAN HD THD FORM SCREW
112-2347		8-18X7/16"LG SLOTTED PAN HD THD FORM SCREW, TP B BLACK OXIDE (2 REQ)
112-2364		6-32X1/2"LG RECESSED CROSS-CUT PAN HD THD FORM SCREW, TP AB BLACK OXIDE (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRNZ (2 REQ)
114-803		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW, TP B STAT BRNZ (2 REQ)
114-1074		6-20X1/2X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRNZ (4 REQ)
114-1108		6-20X3/8X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRNZ (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT092Y

PART NO	REF CODE	DESCRIPTION
		CHASSIS
9NB1X		CHASSIS (SEE 9NB1X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-6961		UHF LOOP ANTENNA ASSEMBLY
A-8727-07		VHF FINE TUNING KNOB
A-8730-05		UHF FINE TUNING KNOB
A-9733		VHF CHANNEL SELECTOR KNOB
A-9734		UHF CHANNEL SELECTOR KNOB
A-9745-03		UHF DIAL SCALE
A-9957-05		VOLUME & ON/OFF KNOB
A-10847		CABINET FRONT & TRIM ASSEMBLY
1-139		VHF MONOPOLE ANTENNA
11-325-11		AC LINE CORD
11-345		DC POWER CORD
14-11387-09		CABINET REAR
39-56-01		EARPHONE, PLUG & CABLE ASSEMBLY
49-1259-02		6CM X 9CM OVAL SPEAKER
95-3262-06		POWER TRANSFORMER
95-3438-01		DEFLECTION YOKE
136-113-23		NORMAL LAG FUSE 4 AMP 250V
192-663		SUN SCREEN
		CATHODE-RAY TUBE (9VASP4)
		VOLUME & ON/OFF CONTROL & BRACKET COMPONENTS
12-7534		CONTROL MOUNTING BRACKET
19-733-01		CABLE RETAINER TIE STRAP
63-10235-98		12KΩ 1/4W 5% FILM
63-10638		VOLUME & ON/OFF CONTROL
86-735-01		CLOSED END TERMINAL, WIRE MOUNTED
		VHF & UHF TUNER & BRACKET ASSEMBLY
A-10264		75Ω COAXIAL CABLE & CONNECTOR HOUSING ASSEMBLY
12-7881-02		TUNER MOUNTING BRACKET
22-6447-01		0.047 μF 20% 100V POLYESTER CAPACITOR (AGC)
22-7141-04		10 μF +100% -10% 16V ELECTROLYTIC
22-7537		1 μF 20% 50V ELECTROLYTIC
22-7615-08		122000 pF +80% -20% 50V CERAMIC DISC (B+)
43-1766		2 POSITION FEMALE CONNECTOR HOUSING (PART OF A-10264)
52-2109		300Ω UHF ANTENNA CABLE
52-2228		300Ω VHF ANTENNA CABLE
52-2443-02		75Ω COAX CABLE & PLUGS (APPROX 7 1/2" LONG)
54-927		3/4-20X1 1/16AF STAMPED LOCK NUT (MTS 175-2231-06 TUNER)
79-91-16		#18 BLACK EXTRUDED SLEEVE (3 REQ)
83-5643-02		INSULATING STRIP
83-8066-02		CABLE RETAINER WIRE TIE (2 REQ)
86-329		CONNECTOR TERMINAL
86-611		FEMALE TERM (2 USED ON 52-2109 CABLE)
86-648		SPRING TERM (2 USED ON 43-1766 HSG)
149-333		IRON CORE SLEEVE (2 REQ, AGC,B+)
175-2231-06		UHF TUNER
175-2242-02		VHF TUNER
		MINOR CABINET COMPONENTS
A-7285		WIRE & TERMINAL ASSEMBLY, BLACK
A-10413-04		BRAIDED WIRE ASSEM (APPROX 18" LONG)
12-7064		ANTENNA MOUNTING BRACKET (2 REQ)
16-5076-01		PACKING & SHIPPING CARTON
19-840-01		FUSE HOLDER CLIP (2 REQ)
19-916		SPEAKER CLIP
23-43		SPLICE CLIP, CRIMP TYPE (2 REQ)
63-10235-52		150Ω 1/4W 5% FILM RESISTOR (USED ON 78-2239 JACK)
78-2239		EARPHONE JACK
79-91-16		#18 BLACK EXTRUDED SLEEVE
80-2432		EXTENSION SPRING
82-114-01		GROUND STRAP, FLAT
82-287		GROUND STRAP, FORMED
83-8066-02		CABLE RETAINER WIRE TIE (2 REQ)
83-8936		RETAINING STRIP (2 REQ)
83-9179		1 LUG TERMINAL STRIP
86-255		SPADE TERMINAL (USED ON BLACK WIRE)
86-256		SHAKE-PROOF TERMINAL
86-411-02		ANTENNA TERMINAL SCREW (4 REQ)
194-950-01		PLASTIC SHEET (2 REQ)
204-825		PCB, FUSE
206-673		OPERATING GUIDE
220-524-02		PACKING MATERIAL
220-524-03		PACKING MATERIAL

PART NO	REF CODE	DESCRIPTION
		CABINET HARDWARE
54-954		M8X0.75 RD SLOTTED MACHINE NUT (MTS 78-2239 JACK)
112-590		8-18X1.000 THD FORM SCREW, RECESSED CROSS-CUT PAN HD TP B STAT BRONZE (2 MT CABT FRONT & CABT REAR, TOP)
112-1233-01		8-18X5/8 PAN HD RECESSED CROSS-CUT THD CUT SCREW TYPE BT STAT BRNZ (2 REQ)
112-1233-02		8-18X3/4 THD CUT SCREW, RECESSED CROSS-CUT PAN HD TP BT STAT BRONZE (3 REQ)
112-2097		6-20X1/2 THD FORM SCREW, RECESSED CROSS-CUT PAN HD TP B CADMIUM (2 MT 1-139 ANT.)
114-802		8-18X5/16X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRONZE (3 MT VOL CONT BRACKET)
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRONZE (5 REQ 1 MTS 83-9179 TERM STRIP & 4 MT 175-2242-02 VHF TUNER)
114-863		8-18X5/16X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRONZE (MTS 204-825 FUSE PCB)
114-1011		8-10X3/4X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRONZE (4 MT 12-7881 TUNER BRKT TO CABT)
114-1014-02		8-18X3/4 THD FORM SCREW, HEX HD W/WASHER TP AB ZINC DICHROMATE (4 MT CRT)

BLACK & WHITE TV

SERVICE NO.	REFERENCE CODE	SERVICE NO.	REFERENCE CODE	SERVICE NO.	REFERENCE CODE
BT120A	A	BT120Y	C	BT121W	E
BT120A1	B	BT120Y1	D	BT121W1	F

NOTE: THIS COMBINED PARTS LIST WILL ENABLE YOU TO MORE EASILY DETERMINE THE PART NUMBER OF PARTS USED ON EACH MODEL, CHASSIS OR ASSEMBLY. EACH OF THESE HAS BEEN ASSIGNED A REFERENCE CODE WHICH IS IN THE COLUMN IMMEDIATELY TO THE RIGHT OF THE PART NUMBER. THE ABSENCE OF A REFERENCE CODE DENOTES THE PART IS USED ON ALL UNITS LISTED.

PART NO	REF CODE	DESCRIPTION
		CHASSIS
12YB1X	ACE	CHASSIS (SEE 12YB1X PARTS LIST FOR COMPONENTS)
12YB4X	BDF	CHASSIS (SEE 12YB4X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-6961		UHF LOOP ANTENNA
A-8727-07		VHF FINE TUNING KNOB
A-8730-05		UHF FINE TUNING KNOB
A-9733	CD	VHF CHANNEL SELECTOR KNOB
A-9733-01	ABEF	VHF CHANNEL SELECTOR KNOB
A-9734	CD	UHF CHANNEL SELECTOR KNOB
A-9734-01	ABEF	UHF CHANNEL SELECTOR KNOB
A-9745-03	CD	UHF DIAL SCALE
A-9745-04	ABEF	UHF DIAL SCALE
A-9957	CD	VOLUME CONTROL KNOB
A-9957-01	ABEF	VOLUME CONTROL KNOB
A-10374-04	CD	CABINET FRONT & TRIM ASSY
A-10374-05	AB	CABINET FRONT & TRIM ASSY
A-10374-07	EF	CABINET FRONT & TRIM ASSY
1-141		MONOPOLE ANTENNA
14-11465	CD	CABINET BACK
14-11465-01	AB	CABINET BACK
14-11465-02	EF	CABINET BACK
49-1323		3" ROUND SPEAKER
95-3335-04		DEFLECTION YOKE
		CRT (12VCBP4)
		VHF & UHF TUNER & BRACKET ASSEMBLY
A-10850		75Ω COAXIAL CABLE ASSEMBLY
12-7881		TUNER MTG BRACKET
22-6447-01		.047μF POLYESTER [illegible] -20% 100V (AGC)
22-7141-04		10μF ELECTROLYTIC [illegible] 20% -10% 16V
22-7431-02		.00047μF CERAMIC [illegible] AP 20% (2 REQ)
22-7537		1μF ELECTROLYTIC [illegible] 0V
22-7615-08		22000pF CERAMIC DISC CAP +80% -20% 50V (B+)
52-2321		300Ω UHF ANTENNA CABLE
52-2443-02		75Ω COAX CABLE & PLUGS
52-2547		300Ω CABLE
54-927		3/4-20X1 1/16AF LOCKING NUT
79-91-32		#18 BLACK EXTRUDED SLEEVING (USED ON 22-6447-01, 22-7615-08 & 22-7537)
83-5643-02		INSULATING STRIP
86-255		SPADE TERMINAL
86-411-01		ANTENNA TERMINAL SCREW (4 REQ)
86-596-02		PIN TERMINAL INSERT
105-146		ANTENNA ISOLATION RC NETWORK (2 REQ)
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (4 REQ)

PART NO	REF CODE	DESCRIPTION
149-333		IRON CORE SLEEVE (2 REQ)
175-1732-10		VHF TUNER
175-5120-07		UHF TUNER
194-760-05		ANTENNA TERMINAL INSULATING STRIP
204-957-01		ANTENNA PCB
		MINOR COMPONENTS
A-10413-02		WIRE & TERMINAL ASSY
S-89766		WIRE & TERMINAL ASSY (ANT BRD TO MONOPOLE ANT)
12-7880-01		CONTROL MTG BRACKET
12-8197		LEFT PCB GUIDE BRACKET
12-8197-01		RIGHT PCB GUIDE BRACKET
16-5134	BDF	PACKING CARTON
16-5134-01	ACE	PACKING CARTON
19-949		SPEAKER RETAINING CLIP (2 REQ)
22-7693		39pF CERAMIC DISC CAP 10% 2000V (YOKE CAP PINS 2 & 3)
80-2432		EXTENSION SPRING
82-263-09		GROUND STRAP
83-8066-02		CABLE TIE (2 REQ)
86-805		ANTENNA TERMINAL (USED ON 1-141)
194-910		INSULATING STRIP
194-950		PLASTIC SHEET
206-673		OPERATING GUIDE
220-552		PACKING MATERIAL
220-552-01		PACKING MATERIAL
220-553		PACKING MATERIAL
220-553-01		PACKING MATERIAL
		HARDWARE
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ
112-2090		8-18X3/4 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (2 MT CABT FRONT TO CABT BACK, BOTTOM)
112-2094		8-18X1 3/8 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (1 MTS CABT FRONT TO CABT BACK, TOP)
112-2289-02		8-32X3/8 RECESSED CROSS-CUT PAN HD MACHINE SCREW,CADMIUM (1 MTS 1-141 ANT)
114-862		8-18X1/2X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (2 MT ON-OFF-VOLUME CONTROL)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (3 TUNER & BRKT ASSY ON A & B, 4 ON C,D,E & F)
114-1431-01		8-18XO/4X1/4AF HEX MD W/WASHER THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT122W

PART NO	REF CODE	DESCRIPTION
		CHASSIS
9NB1X		CHASSIS (SEE 9NB1X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-6961		UHF LOOP ANTENNA ASSEMBLY
A-8727-07		VHF FINE TUNING KNOB
A-8730-05		UHF FINE TUNING KNOB
A-9733		VHF CHANNEL SELECTOR KNOB
A-9734		UHF CHANNEL SELECTOR KNOB
A-9745-03		UHF DIAL SCALE
A-9957		VOLUME CONTROL KNOB
A-10374-06		CABINET FRONT & TRIM ASSEMBLY
1-141		VHF MONOPOLE ANTENNA
11-345		DC POWER CORD
14-11465-04		CABINET REAR
49-1323		ROUND SPEAKER 3"
95-3438		DEFLECTION YOKE
		CATHODE-RAY TUBE (12VCBP4)
		VOLUME & ON/OFF CONTROL & BRACKET ASSEMBLY COMPONENTS
11-350-01		AC LINE CORD
12-7880-01		MOLDED PLASTIC BRACKET, CONTROL MOUNTING
63-10235-98		12KΩ 1/4W 5% FILM RESISTOR
63-10526-01		2.2 MEGΩ 20% 1/2W CARBON RESISTOR
63-10928		VOLUME & ON/OFF CONTROL
83-8066-02		CABLE RETAINER WIRE TIE (2 REQ)
86-256		SHAKE-PROOF LOCKING TERMINAL
95-3262-05		POWER TRANSFORMER
136-114-23		NORMAL LAG FUSE 4 AMP 250V
		VHF & UHF TUNER & BRACKET COMPONENTS
12-7881		METAL STAMPING PLATE, TUNER MOUNTING
22-6447-01		0.047μF 20% 100V POLYESTER CAPACITOR (AGC)
22-7537		1μF 20% 50V ELECTROLYTIC
22-7615-08		22000PF +80% -20% 50V CERAMIC DISC (B+)
52-2321		300Ω TWIN-LEAD CABLE
52-2443-02		75Ω COAX CABLE & PLUGS
54-927		3/4-20X1 1/16AF STAMPED LOCK NUT
83-5643-02		INSULATING STRIP
83-8066-02		CABLE RETAINER WIRE TIE
86-255		TERMINAL SPADE
86-411-01		ANTENNA TERMINAL SCREW (4 REQ)

PART NO	REF CODE	DESCRIPTION
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRONZE (4 REQ)
149-333		IRON CORE SLEEVE (2 REQ, AGC,B+)
175-2231-06		UHF TUNER
175-2242-02		VHF TUNER (SEE 175-2242-02 PARTS LIST FOR COMPONENTS)
194-760-05		ANT TERM INSULATED MOUNTING STRIP
		MINOR CABINET COMPONENTS
A-10413-02		WIRE & TERMINAL ASSEMBLY
S-89766		WIRE & TERMINAL ASSEMBLY (ANTENNA BOARD TO VHF ANTENNA)
12-8114		PLASTIC PCB SUPPORT RAIL
12-8197		PLASTIC PCB GUIDE BRACKET, LEFT
12-8197-01		PLASTIC PCB GUIDE BRACKET, RIGHT
16-5134-01		PACKING CARTON
19-949		SPEAKER RETAINING CLIP (2 REQ)
23-43		SPLICE CLIP, CRIMP TYPE (2 REQ)
80-2432		EXTENSION SPRING
82-263-09		GROUND STRAP, FLAT
83-8066-02		CABLE RETAINER WIRE TIE (2 REQ)
86-805		ANTENNA TERMINAL
206-673		OPERATING GUIDE
220-552		PACKING MATERIAL
220-552-01		PACKING MATERIAL
220-553		PACKING MATERIAL
220-553-01		PACKING MATERIAL
		CABINET HARDWARE
112-1139		6-20X1/2 THD CUT SCREW, RECESSED CROSS-CUT PAN HD TP BT STAT BRONZE
112-2090		8-18X3/4 THD FORM SCREW, RECESSED CROSS-CUT PAN HD TP B STAT BRONZE (2 REQ, CABT FRONT & CABT REAR BOTTOM)
112-2094		8-18X1 3/8 THD FORM SCREW, RECESSED CROSS-CUT PAN HD TP B STAT BRONZE (CABT FRONT & CABT REAR TOP)
112-2289-02		8-32X3/8 MACHINE SCREW, RECESSED CROSS-CUT PAN HD CADMIUM (MTS 1-141)
114-862		8-18X1/2X1/4AF HEX WHR HD THD FORM SCREW, TP B STAT BRONZE (2 REQ, MTS ON/OFF VOLUME)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRONZE (7 REQ, 4 USED ON VHF & UHF TUNERS, 3 USED ON VOL & ON/OFF CONTROL)
114-1431-01		8-18X3/4X1/4AF HEX HD W/WASHER THD CUT SCREW, TP BT STAT BRONZE (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT124W

PART NO	REF CODE	DESCRIPTION
		CHASSIS
12YB3X		CHASSIS (SEE 12YB3X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-9957		VOLUME CONTROL KNOB
A-10377		CABINET FRONT & TRIM ASSEMBLY
1-141		MONOPOLE ANTENNA
14-11465-03		CABINET REAR
49-1323		3" ROUND SPEAKER
95-3335-04		DEFLECTION YOKE
		CRT (12VCBP4)
		175-2252 CHANNEL SELECTOR UNIT
A-10855		75Ω COAXIAL CABLE ASSEMBLY
19-733-05		11" CABLE TIE
20-3907		RCF COIL
20-3907-06		RCF COIL
22-3652		0.1μF CERAMIC DISC CAP +80% -20% 10V
22-5251		0.15μF CERAMIC DISC CAP ±20% 10V
22-7150-11		470μF ELECTROLYTIC +100% -10% 10V
22-7151-04		10μF ELECTROLYTIC +100% -10% 16V
22-7151-11		470μF LYTIC +100% -10% 16V (2 REQ)
22-7153-04		10μF ELECTROLYTIC +100% -10% 50V
22-7202		0.039μF POLYESTER CAP 10% 50V
22-7244		0.0015μF CERAMIC DISC CAP ±5% 500V (4 REQ)
22-7390-02		0.47μF ELECTROLYTIC ±20% 50V
22-7431-02		0.00047μF CERAMIC DISC CAP 20% (2 REQ)
22-7547		.1μF POLYESTER CAP 10% 50V (2 REQ)
22-7614-24		10000pF CERAMIC DISC CAP 20% 50V
22-7615		1000pF CERAMIC DISC CAP +80% -20% 50V (3 REQ)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V
22-7620-38		150pF CERAMIC DISC CAP 10% 50V
22-7621-21		30pF CERAMIC DISC CAP 5% 50V (2 REQ)
22-7802-03		3300pF CERAMIC TUBULAR CAP 20% 50V (2 REQ)
22-7848-03		1.5pF ±.25pF CERAMIC DISC CAP 50V
22-7864-06		22μF ELECTROLYTIC 20% 100V (2 REQ)
22-7888		15μF ELECTROLYTIC 20% 100V (4 REQ)
43-1770		HOUSING
46-10407		PUSH-BUTTON KEY SET
52-2417-15		75Ω COAX CABLE (10 1/2")
52-2525-06		75Ω COAX CABLE (11 1/2")
63-10235-40		47Ω FILM RESISTOR 5% 1/4W
63-10235-47		91Ω FILM RESISTOR 5% 1/4W
63-10235-48		100Ω FILM RESISTOR 5% 1/4W
63-10235-60		330Ω FILM RESISTOR 5% 1/4W
63-10235-64		470Ω FILM RESISTOR 5% 1/4W
63-10235-68		680Ω FILM RESISTOR 5% 1/4W
63-10235-72		1KΩ FILM RESISTOR 5% 1/4W (4 REQ)
63-10235-80		2200Ω 5% 1/4W FILM RES.
63-10235-84		3300Ω 5% 1/4W FILM RES.
63-10235-86		3900Ω 5% 1/4W FILM RES.
63-10235-88		4700Ω FILM RESISTOR 5% 1/4W (5 REQ)
63-10235-94		8200Ω FILM RESISTOR 5% 1/4W
63-10235-96		10KΩ FILM RESISTOR 5% 1/4W (5 REQ)
63-10236		15KΩ FILM RESISTOR 5% 1/4W (2 REQ)
63-10236-08		33KΩ FILM RESISTOR 5% 1/4W (2 REQ)
63-10236-10		39KΩ FILM RESISTOR 5% 1/4W
63-10236-20		100KΩ FILM RESISTOR 5% 1/4W
63-10236-28		220KΩ FILM RESISTOR 5% 1/4W (2 REQ)
63-10243-96		10KΩ FILM RESISTOR 5% 1/2W
63-10243-98		12KΩ FILM RESISTOR 5% 1/2W
63-10565-32		22Ω FILM RESISTOR 5% 1/2W (2 REQ)
75-34		RED LED DISPLAY
82-298		GROUND PLATE W/BUTTON GUIDE
86-255		SPADE TERMINAL
86-411-02		ANTENNA TERMINAL SCREW (2 REQ)
86-596-02		PIN TERMINAL INSERT (2 REQ)
95-3508-01		BALUN TRANSFORMER

PART NO	REF CODE	DESCRIPTION
103-142-01		DIODE,LOW VOLT (5 REQ)
103-261-04		DIODE, LOW VOLT (4 REQ)
103-279-09		ZENER DIODE 4.7V 0.5W
103-295-02		DIODE, LOW VOLT (6 REQ)
105-146		ANTENNA ISOLATION RC NETWORK (4 REQ)
112-1381		4-24X3/8 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,BLK OXIDE (4 REQ)
114-1080		4-24X7/16X3/16AF HEX HD THD CUT SCREW,TP B,STAT BRNZ
121-499		TRANSISTOR,NPN
121-699		TRANSISTOR,PNP
121-699-01		TRANSISTOR,PNP (3 REQ)
121-819		TRANSISTOR,NPN (3 REQ)
121-975		TRANSISTOR,NPN (3 REQ)
121-1035		TRANSISTOR,NPN
121-1042		TRANSISTOR,NPN DARLINGTON
126-2093		BOTTOM SHIELD
126-2124		IF SHIELD
127-224		RUBBER CONTACT PAD
149-417		FERRITE CORE SLEEVE
149-417-01		FERRITE CORE BEAD (PIN 16)
175-2038		VHF-UHF VARACTOR TUNER (SEE 175-2038 PARTS LIST FOR COMPONENTS)
194-760-08		ANTENNA TERMINAL INSULATING STRIP
194-986		INSULATING STRIP
221-144		INTEGRATED CIRCUIT (C MOS PLL)
221-216-01		INTEGRATED CIRCUIT (MICRO-COMPUTER)
221-255		INTEGRATED CIRCUIT (PRESCALER)
224-11-01		QUARTZ CRYSTAL (OSCILLATOR)
		MINOR COMPONENTS
A-10413-02		WIRE & TERMINAL ASSEMBLY
12-8197		LEFT PCB GUIDE BRACKET
12-8197-01		RIGHT PCB GUIDE BRACKET
16-5134-01		PACKING CARTON
19-949		SPKR RETAINING CLIP (2 REQ)
22-7693		39pF CERAMIC DISC CAP 10% 2000V (YOKE CAP PINS 2 & 3)
30-966-01		DIAL SCALE & CLOCK OVERLAY (PART OF A-10377)
80-2432		EXTENSION SPRING
83-8066-02		CABLE RETAINER TIE (4 REQ)
86-805		ANTENNA TERMINAL (USED ON 1-141)
194-910		INSULATING STRIP
206-739		OPERATING GUIDE
220-552		PACKING MATERIAL
220-552-01		PACKING MATERIAL
220-553		PACKING MATERIAL
220-553-01		PACKING MATERIAL
		HARDWARE
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT STAT BRNZ (1 MTS ANT ASSEM. TO CABT REAR)
112-2090		8-18X3/4 RECESSED CROSS-CUT PAN HD THD FORM SCREW TP B STAT BRNZ (2 MT CABT FRONT TO BOTTOM)
112-2094		8-18X1 3/8 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (1 MTS CABT FRONT TO REAR TOP)
112-2289-02		8-32X3/8 RECESSED CROSS-CUT PAN HD MACHINE SCREW,CADMIUM
114-862		8-18X1/2X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (2 MT ON-OFF-VOLUME CONTROL)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (3 MT TUNER SYSTEM)
114-1431-01		8-18X3/4X1/4AF HEX HD W/WASHER THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT124W1

PART NO	REF CODE	DESCRIPTION
		CHASSIS
12YB5X		CHASSIS (SEE 12YB5X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-9957		VOLUME CONTROL KNOB
A-10377		CABINET FRONT & TRIM ASSEMBLY
1-141		MONOPOLE ANTENNA
14-11465-03		CABINET REAR
49-1323		3" ROUND SPEAKER
95-3335-04		DEFLECTION YOKE
		CRT (12VCBP4)
		175-2260 CHANNEL SELECTOR UNIT
A-10855		CABLE ASSEMBLY
19-733-05		CABLE RETAINER STRAP CABLE TIE
19-1013		U SHAPED CLIP
20-3907		RCF COIL (L304)
20-3907-06		RCF COIL (L301)
22-3652		.1μF CERAMIC DISC CAP +80% -20% 10V (C315)
22-5251		.15μF CERAMIC DISC CAP ±20% 10V (C321)
22-7150-11		470μF ELECTROLYTIC +100% -10% 10V (C314)
22-7151-04		10μF ELECTROLYTIC +100% -10% 16V (C338)
22-7151-07		47μF ELECTROLYTIC +100% -10% 16V (C322)
22-7151-11		470μF ELECTROLYTIC +100% -10% 16V (C319)
22-7153-04		10μF ELECTROLYTIC +100% -10% 50V (C316)
22-7244		.0015μF CERAMIC DISC CAP ±5% 500V (C325,C326,C327,C328)
22-7390-02		.47μF ELECTROLYTIC ±20% 50V (C323)
22-7431-02		.00047μF CERAMIC DISC CAP 20% (CX336,CX337)
22-7547		.1μF POLYESTER CAP 10% 50V (C311,C313)
22-7614-24		10000pF CERAMIC DISC CAP 20% 50V (C306)
22-7615		1000pF CERAMIC DISC CAP +80% -20% 50V (C304,C303,C307)
22-7615-08		22000pF CERAMIC DISC CAP +80% -20% 50V (C318)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (C309)
22-7620-38		150pF CERAMIC DISC CAP 10% 50V (C310)
22-7621-21		30pF CERAMIC DISC CAP 5% 50V (C301,C302)
22-7739-19		.039μF POLYESTER CAP 10% 100V (C312)
22-7802-03		3300pF CERAMIC TUBULAR CAP 20% 50V (C305,C308)
22-7848-03		1.5pF CERAMIC DISC CAP ±.25pF 50V (C335)
22-7864-06		22μF ELECTROLYTIC 20% 100V (C331,C332)
22-7888		15μF ELECTROLYTIC 20% 100V (C329,C330,C333,C334)
43-1770		HOUSING
46-10407		KEY SET,PUSH-BUTTON
52-2417-15		75Ω COAX CABLE (10 1/2")
52-2525-10		75Ω COAX CABLE
63-10235-40		47Ω FILM RES. 5% 1/4W
63-10235-47		91Ω FILM RES. 5% 1/4W (R319)
63-10235-48		100Ω FILM RES. 5% 1/4W (R344)
63-10235-60		330Ω FILM RES. 5% 1/4W (R310)
63-10235-64		470Ω FILM RES. 5% 1/4W (R301)
63-10235-68		680Ω FILM RES. 5% 1/4W (R302,R332,R340)
63-10235-72		1KΩ FILM RES. 5% 1/4W (R303,R304,R305,R331)
63-10235-80		2.2KΩ FILM RES. 5% 1/4W (R320,R339)
63-10235-84		3.3KΩ FILM RES. 5% 1/4W (R306)
63-10235-86		3.9KΩ FILM RES. 5% 1/4W (R321)
63-10235-88		4.7KΩ FILM RES. 5% 1/4W (R313,R316,R318,R338,R341)
63-10235-94		8.2KΩ FILM RES. 5% 1/4W (R327)
63-10235-96		10KΩ FILM RES. 5% 1/4W (R314,R315,R317,R322,R342)
63-10236		15KΩ FILM RES. 5% 1/4W (R307,R323)
63-10236-08		33KΩ FILM RES. 5% 1/4W (R308,R343)
63-10236-10		39KΩ FILM RES. 5% 1/4W (R324)
63-10236-20		100KΩ FILM RES. 5% 1/4W (R309)
63-10236-28		220KΩ FILM RES. 5% 1/4W (R311,R312)
63-10243-96		10KΩ FILM RES. 5% 1/2W (R326)
63-10243-98		12KΩ FILM RES. 5% 1/2W (R325)
63-10565-32		22Ω FILM RES. 5% 1/2W (RX329,RX330)

PART NO	REF CODE	DESCRIPTION
75-34		RED LED DISPLAY (LED 301)
82-298		GROUND PLATE W/BUTTON GUIDE
86-255		SPADE TERMINAL
86-411-02		ANTENNA TERMINAL SCREW (2 REQ)
86-596-02		PIN TERMINAL INSERT (2 REQ)
95-3508-01		BALUN TRANSFORMER (T301)
103-142-01		DIODE (CR302,CRX303,CRX304, CRX305,CRX306)
103-261-04		DIODE (CRX308,CRX309,CRX310,CRX311)
103-279-08		ZENER DIODE,4.3V,.5W (CR307)
103-279-22		ZENER DIODE,13V,.5W (CR318)
103-295-02		DIODE (CRX312,CRX313,CRX314,CRX315, CRX316,CRX317)
105-146		ANTENNA ISOLATION RC NETWORK (UX301,UX302,UX303,UX304)
112-1381		4-24X3/8 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,BLK OXIDE (4 REQ)
114-1080		4-24X7/16X3/16AF HEX HD THD CUT SCREW,TP B,STAT BRNZ
121-499		TRANSISTOR,NPN (Q310)
121-699		TRANSISTOR,PNP (Q311)
121-699-01		TRANSISTOR,PNP (Q306,Q307,Q308)
121-819		TRANSISTOR,NPN (Q301,Q302,Q303)
121-975		TRANSISTOR,NPN (Q304,Q305,Q313)
121-1035		TRANSISTOR,NPN (Q312,Q314)
121-1042		TRANSISTOR,NPN (Q309)
126-2093		KEYBOARD SHIELD
126-2124		IF SHIELD
127-224		RUBBER CONTACT PAD
149-417		FERRITE CORE SLEEVE (L303)
149-417-01		FERRITE BEAD CORE (PIN 16, L302)
175-2038		VHF-UHF VARACTOR TUNER
194-760-08		ANTENNA TERMINAL INSULATING STRIP
194-986		INSULATING STRIP
221-144		INTEGRATED CIRCUIT (C MOS PLL,IC303)
221-216-01		INTEGRATED CIRCUIT (MICRO-COMPUTER,IC301)
221-255		INTEGRATED CIRCUIT (PRESCALER,IC302)
224-11-01		QUARTZ CRYSTAL (CR301)
		MINOR COMPONENTS
A-10413-02		WIRE & TERMINAL ASSEMBLY
12-7880-01		CONTROL MTG BRACKET
12-8197		LEFT PCB GUIDE BRACKET
12-8197-01		RIGHT PCB GUIDE BRACKET
16-5134		PACKING CARTON
19-733-01		3 4/5" CABLE TIE
19-949		SPKR RETAINING CLIP (2 REQ)
22-7693		39pF CERAMIC DISC CAP 10% 2000V (YOKE CAP PINS 2 & 3)
30-966-01		DIAL SCALE & CLOCK OVERLAY (PART OF A-10377)
80-2432		EXTENSION SPRING
83-8066-02		WIRE TIE (4 REQ)
86-805		ANTENNA TERMINAL (USED ON 1-141)
149-379		FERRITE SLEEVE (2 REQ)
194-910		INSULATING STRIP
206-739		OPERATING GUIDE
220-552		PACKING MATERIAL
220-552-01		PACKING MATERIAL
220-553		PACKING MATERIAL
220-553-01		PACKING MATERIAL
		HARDWARE
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT STAT BRNZ (1 MTG ANT ASSY TO CABT REAR)
112-2090		8-18X3/4 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (2 MTG CABT FRONT TO CABT REAR BOTTOM)
112-2094		8-18X1 3/8 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (1 MTG CABT FRONT TO CABT REAR TOP)
112-2289-02		8-32X3/8 RECESSED CROSS-CUT PAN HD MACHINE SCREW
114-862		8-18X1/2X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (2 MTG ON-OFF-OLUME CONTROL)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (3 MTG TUNER SYSTEM)
114-1431-01		8-18X3/4X1/4AF HEX HD W/WASHER THD CUT SCREW,TP BT,STAT BRNZ (4 REQ)

BLACK & WHITE TV SERVICE NUMBER BT193W

PART NO	REF CODE	DESCRIPTION
		CHASSIS
19MB2X		CHASSIS (SEE 19MB2X PARTS LIST FOR COMPONENTS)
		PRINCIPAL CABINET COMPONENTS
A-6961		UHF LOOP ANTENNA
A-8727-07		VHF FINE TUNING KNOB
A-8730-05		UHF FINE TUNING KNOB
A-9733-01		VHF CHANNEL SELECTOR KNOB
A-9734-01		UHF CHANNEL SELECTOR KNOB
A-9745-02		UHF DIAL SCALE
A-9957-04		ON-OFF-VOLUME & PICTURE CONTROL KNOB (2 REQ)
1-141		MONOPOLE ANTENNA
14-11492		CABINET BACK
14-11493		CABINET FRONT
49-1329		3X5" OVAL SPEAKER
95-3216-03		DEFLECTION YOKE
		CRT (19VKAP4 OR 19VKCP4)
		ON-OFF-VOLUME & PICTURE CONTROL & BRACKET ASSEM
12-8005		CONTROL MTG BRACKET
22-7241		.001μF CERAMIC DISC CAP ±10% 500V
63-10923		ON-OFF-VOLUME CONTROL
63-10924		PICTURE CONTROL
79-91-32		#18 BLACK EXTRUDED SLEEVING (2 REQ)
		VHF & UHF TUNER & BRACKET ASSEMBLY
A-11243		CABLE ASSEMBLY WITH SPLICE CLIP
12-7881		TUNER MTG PLATE
22-6447-01		.047μF POLYESTER CAP 20% 100V
22-7431-02		.00047μF CERAMIC DISC CAP [illegible] (2 REQ)
22-7615-02		2200pF CERAMIC DISC CAP +80%-20% 50V (B+)
52-1927		300Ω CABLE (BLACK)
52-2443-02		75Ω COAX CABLE & PLUGS
54-927		3/4-20X 1 1/16AF LOCKING NUT
79-91-32		#18 BLACK EXTRUDED SLEEVING
83-5643-02		INSULATING STRIP
86-255		SPADE TERMINAL
86-411-01		ANTENNA TERMINAL SCREW (4 REQ)
86-596-02		PIN TERMINAL INSERT
105-146		ANTENNA ISOLATION RC NETWORK (2 REQ)
114-803		6-20X1/4X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (4 MTG VHF TUNER)
149-333		IRON CORE (2 REQ)
175-1732-10		VHF TUNER (SEE 175-1732-10 PARTS LIST FOR COMPONENTS)
175-5120-07		UHF TUNER
194-760-05		ANTENNA TERMINAL INSULATING STRIP
204-957-01		ANTENNA PCB

PART NO	REF CODE	DESCRIPTION
		MINOR COMPONENTS
S-89766		WIRE & TERMINAL ASSY (BLACK)
12-8006		RIGHT CABT BACK MTG BRACKET
12-8006-01		LEFT CABT BACK MTG BRACKET
12-8037		LEFT CHASSIS MTG BRACKET
12-8037-01		RIGHT CHASSIS MTG BRACKET
16-5152-01		PACKING CARTON
19-949		RETAINING CLIP (2 REQ)
22-7320		330pF CERAMIC DISC CAP ±10% 2KV
22-7431-04		.001μF CERAMIC DISC CAP ±20%
26-2565-06		DIAL SCALE CIRCULAR, VHF
52-2111		300Ω CABLE (GREEN)
76-2112-04		HORIZ HOLD CONTROL SHAFT
79-72-32		#5 EXTRUDED PLASTIC SLEEVING (2 REQ)
79-180-40		CLEAR PLASTIC SLEEVING
83-8066-02		CABLE TIE (10 REQ)
83-9154		1 LUG TERMINAL STRIP
86-81		SHAKEPROOF TERMINAL
86-805		ANTENNA TERMINAL (USED ON 1-141)
149-379		FERRITE SLEEVE (2 REQ)
206-673		OPERATING GUIDE
220-568		PACKING MATERIAL
220-568-01		PACKING MATERIAL
220-568-02		PACKING MATERIAL
220-568-03		PACKING MATERIAL
		HARDWARE
93-2023-08		NON-METAL WHR (USED ON UHF SHAFT)
93-2112		#8X3/4 WASHER, STAT BRNZ
112-1139		6-20X1/2 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ (1 MTS ANT. PCB)
112-1165-02		6-20X3/8 RECESSED CROSS-CUT PAN HD THD CUT SCREW,TP BT,STAT BRNZ
112-1628		8-18X5/8 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP B,STAT BRNZ (2 MT CABT FRONT TO CABT BACK BOTTOM)
112-2247		8-18X5/8 RECESSED CROSS-CUT PAN HD THD FORM SCREW,TP AB,STAT BRNZ (2 MT CABT FRONT TO CABT BACK TOP)
112-2289-02		8-32X3/8 RECESSED CROSS-CUT PAN HD MACHINE SCREW (1 MTS ANTENNA)
114-802		8-18X5/16X1/4AF HEX WASHER HD THD FORM SCREW,TP B,STAT BRNZ (4 REQ)
114-862		8-18X1/2X1/4AF HEX WHR HD THD FORM SCREW,TP B,STAT BRNZ (3 REQ 1 MTS 12-8005, 2 MT SWEEP)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (4 MT TUNERS)
114-1011-02		8-18X3/8X1/4AF HEX WASHER HD THD CUT SCREW,TP BT,STAT BRNZ (3 REQ)
114-1014-01		8-18X1 3/8X1/4AF HEX HD W/WASHER THD FORM SCREW,TP AB,PLAIN

BLACK & WHITE TV SERVICE NUMBER BT194W

PART NO	REF CODE	DESCRIPTION
		CHASSIS
19MB2X		CHASSIS (SEE 19MB2X PARTS LIST FS LIST FOR COMPONENTS)
		PRINCIPAL COMPONENTS
A-9957-03		OFF/ON VOLUME & PICTURE CONTROL KNOB
1-141		VHF MONOPOLE ANTENNA
14-11492-01		CABINET REAR
14-11493-01		CABINET FRONT
49-1329		3"X5" OVAL SPEAKER
95-3216-03		DEFLECTION YOKE TRANSFORMER
		CRT (19VKAP4 OR 19VKCP4)
		175-2261 CHANNEL SELECTOR UNIT & KEYBOARD ASSEM
A-10850		75Ω COAX CABLE & WIRE ASSEMBLY
19-733-05		CABLE RETAINING TIE (11")
19-1013		CLIP, "U" SHAPED
20-3907		RCF COIL (L304)
20-3907-06		RCF COIL
22-3652		0.1μF CERAMIC DISC CAP +80% -20% 10V (C315)
22-5251		0.15μF CERAMIC DISC CAP 20% 10V (2 REQ)
22-7150-11		470μF ELECTROLYTIC +100% -10%
22-7151-04		10μF ELECTROLYTIC +100% -10%
22-7151-07		47μF ELECTROLYTIC +100% -10% (C322)
22-7151-11		470μF ELECTROLYTIC +100% -10% 16V
22-7153-04		10μF ELECTROLYTIC +100% -10%
22-7244		0.0015μF CERAMIC DISC CAP 5% 500V (4 REQ)
22-7390-02		0.47μF ELECTROLYTIC 20% 50V
22-7431-02		0.00047μF CERAMIC DISC CAP (2 REQ)
22-7547		0.1μF POLYESTER CAP 10% 50V (2 REQ)
22-7614-24		10000pF CERAMIC DISC CAP 20% 50V (C306)
22-7615		1000pF CERAMIC DISC CAP +80% -20% 50V (2 REQ)
22-7615		1000pF CERAMIC DISC CAP +80% -20% 50V
22-7615-08		22000pF CERAMIC DISC CAP +80% -20% 50V (C318)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (C309)
22-7620-38		150pF CERAMIC DISC CAP 10% 50V
22-7739-19		0.039μF POLYESTER CAP 10% 100V (C312)
22-7802-03		3300pF CERAMIC TUBULAR CAP 20% 50V (2 REQ C305,C308)
22-7848-03		1.5pF CERAMIC DISC CAP 0.25pF 50V
22-7864-06		22μF ELECTROLYTIC 20% 100V (2 REQ)
22-7888		15μF ELECTROLYTIC 20% 100V (4 REQ)
43-1770		KEYBOARD HOUSING
46-10407		CHANNEL PUSH-BUTTON
52-2525-10		75Ω COAX CABLE & PLUGS
63-10235-40		47Ω FILM RES. 5% 1/4W
63-10235-47		91Ω FILM RES. 5% 1/4W (R319)
63-10235-48		100Ω FILM RES. 5% 1/4W (R344)
63-10235-60		330Ω FILM RES. 5% 1/4W
63-10235-64		470Ω FILM RES. 5% 1/4W
63-10235-68		680Ω FILM RES. 5% 1/4W
63-10235-72		1KΩ FILM RES. 5% 1/4W (4 REQ)
63-10235-80		2200Ω FILM RES. 5% 1/4W (2 REQ)
63-10235-84		3300Ω FILM RES. 5% 1/4W
63-10235-86		3900Ω FILM RES. 5% 1/4W
63-10235-88		4700Ω FILM RES. 5% 1/4W (5 REQ)
63-10235-94		8200Ω FILM RES. 5% 1/4W
63-10235-95		9100Ω FILM RES. 5% 1/4W
63-10235-96		10KΩ FILM RES. 5% 1/4W (5 REQ)
63-10236		15KΩ FILM RES. 5% 1/4W
63-10236-08		33KΩ FILM RES. 5% 1/4W (2 REQ)
63-10236-10		39KΩ FILM RES. 5% 1/4W
63-10236-20		100KΩ FILM RES. 5% 1/4W
63-10236-28		220KΩ FILM RES. 5% 1/4W (2 REQ)
63-10243-96		10KΩ FILM RES. 5% 1/2W
63-10243-98		12KΩ FILM RES. 5% 1/2W
63-10565-32		22Ω FILM RES. 5% 1/2W (2 REQ)
75-34		RED LED DISPLAY
82-298		GROUND PLATE W/BUTTON GUIDE
83-8066-02		CABLE RETAINING TIE (2 REQ)
86-255		TERMINAL SPADE
86-411-02		ANTENNA TERMINAL SCREW (2 REQ)
86-596-02		INSERT PIN TERMINAL (4 REQ)
95-3508-01		BALUN TRANSFORMER
103-142-01		DIODE, LOW VOLT (5 REQ)
103-279-08		4.3V ZENER DIODE 0.5W (CR307)
103-279-22		13V ZENER DIODE 0.5W (CR318)
103-295-02		DIODE, LOW VOLT (6 REQ)

PART NO	REF CODE	DESCRIPTION
105-146		ANTENNA ISOLATION NETWORK (4 REQ)
112-1381		4-24X3/8 THD CUT SCREW, RECESSED CROSS-CUT PAN HD, TP BT BLACK OXIDE (4 REQ)
114-1080		4-24X7/16X3/16AF HEX HD THD CUT SCREW, TP B STAT BRNZ
121-499		TRANSISTOR, NPN
121-699		TRANSISTOR, PNP
121-699-01		TRANSISTOR, PNP (3 REQ)
121-819		TRANSISTOR, NPN (3 REQ)
121-975		TRANSISTOR, NPN (3 REQ)
121-1035		TRANSISTOR, NPN (2 REQ)
121-1042		TRANSISTOR, NPN
127-224		RUBBER CONTACT PAD
149-417-01		FERRITE BEAD CORE
175-2038		VHF/UHF TUNER (SEE 175-2038 PARTS LIST FOR COMPONENTS)
194-760-08		ANTENNA TERMINAL INSULATING STRIP
194-986		INSULATING STRIP
194-1043		INSULATING STRIP
221-144		INTEGRATED CIRCUIT (PHASE LOCK LOOP)
221-216-01		INTEGRATED CIRCUIT (MICRO COMPUTER)
221-255		INTEGRATED CIRCUIT (PRESCALER)
224-11-01		QUARTZ CRYSTAL
		CONTROL PANEL COMPONENTS
12-8005		CONTROL MTG BRACKET
22-7241		0.001μF CERAMIC DISC CAP 10% 500V
63-10923		OFF/ON VOLUME CONTROL
63-10924		PICTURE CONTROL
		SWEEP TRANSFORMER & BRACKET COMPONENTS
12-8037-01		RIGHT SIDE CHASSIS MTG BRACKET
22-7320		330pF CERAMIC DISC CAP 10% 2KV
95-3429-04		SWEEP TRANSFORMER
		MINOR COMPONENTS
12-8006		RIGHT SIDE CABINET BACK MTG BRACKET
12-8006-01		LEFT SIDE CABINET BACK MTG BRACKET
12-8037		LEFT SIDE CHASSIS MTG BRACKET
16-5152-01		PACKING & SHIPPING CARTON
19-949		RETAINING CLIP (2 REQ)
22-7431-04		0.001μF CERAMIC DISC CAP 20%
30-1016		CONTROL OVERLAY
76-2112-04		CONTROL ADJ SHAFT
79-180-32		#1 CLEAR EXTRUDED SLEEVE
79-283-32		#2 YELLOW EXTRUDED SLEEVE
83-8066-02		CABLE RETAINING TIE (8 REQ)
83-9154		1 LUG TERMINAL STRIP
86-81		SHAKE-PROOF TERMINAL
86-256		LOCKING SHAKE-PROOF TERMINAL
86-805		ANTENNA TERMINAL
149-379		FERRITE SLEEVE
206-739		OPERATING GUIDE
220-568		PACKING MATERIAL
220-568-01		PACKING MATERIAL
220-568-02		PACKING MATERIAL
220-568-03		PACKING MATERIAL
		HARDWARE
93-2112		#8X3/4 OD STEEL WASHER, STAT BRNZ
112-1139		6-20X1/2 THD CUT SCREW, RECESSED CROSS-CUT PAN HD, TP BT STAT BRNZ
112-1165-02		6-20X3/8 THD CUT SCREW, RECESSED CROSS-CUT PAN HD, TP BT STAT BRNZ
112-1628		8-18X5/8 THD FORM SCREW, RECESSED CROSS-CUT PAN HD (2 REQ)
112-2247		8-18X5/8 THD FORM SCREW, RECESSED CROSS-CUT PAN HD (2 REQ)
112-2289-02		8-32X3/8 MACH SCREW, RECESSED CROSS-CUT PAN HD
114-802		8-18X3/16X1/4AF HEX WASHER HD THD FORM SCREW (4 REQ)
114-862		8-18X1/2X1/4AF HEX WASHER HD THD FORM SCREW, TP B STAT BRNZ (3 REQ)
114-1011		8-18X3/4X1/4AF HEX WASHER HD THD CUT SCREW, TP B STAT BRNZ (3 REQ)
114-1011-02		8-18X1 3/8X1/4AF HEX WASHER HD THD CUT SCREW, TP BT STAT BRNZ (3 REQ)
114-1014-01		8-18X1 3/8X1/4AF HEX HD W/WASHER THD FORM SCREW, TP AB PLAIN

BLACK & WHITE TV CHASSIS

SERVICE NO.	REFERENCE CODE	SERVICE NO.	REFERENCE CODE
5NB1X	A	5NB4X	C
5NB2X	B	5NB5X	D

NOTE: THIS COMBINED PARTS LIST WILL ENABLE YOU TO MORE EASILY DETERMINE THE PART NUMBER OF PARTS USED ON EACH MODEL, CHASSIS OR ASSEMBLY. EACH OF THESE HAS BEEN ASSIGNED A REFERENCE CODE WHICH IS IN THE COLUMN IMMEDIATELY TO THE RIGHT OF THE PART NUMBER. THE ABSENCE OF A REFERENCE CODE DENOTES THE PART IS USED ON ALL UNITS LISTED.

PART NO	REF CODE	DESCRIPTION
		PRINCIPAL COMPONENTS
A-9165		CRT SOCKET & PCB ASSEMBLY
52-958-04		SPARK GAP (3 REQ E801, E802 & E803)
63-10637-07		250KΩ CONTROL (2 REQ, CONTRAST R805, BLACK LEVEL R811)
63-10651-12		100KΩ CONTROL (4 USED ON ABC, VHF H R101, R105, R501 HORIZ HOLD R501 & 1 USED ON D, HORIZ HOLD R501)
63-10651-15	D	50KΩ CONTROL (VHF LO-SCALE ADJ R105)
63-10651-16		20KΩ CONTROL (1 USED ON AC, AGC R404 & 2 USED ON B, AGC R404, VHF HI-SCALE ADJ & 3 USED ON D, AGC R404, VHF I-SCALE ADJ R101, R102)
63-10651-17		300KΩ CONTROL (2 REQ, VERT SIZE R603, BLACK LEVEL R812)
63-10651-18		10KΩ CONTROL (1 REQ AC, VOLT ADJ RX708, 3 REQ B, VOLT ADJ RX708, VHF HI-SCALE ADJ R104, R106, 2 REQ, VOLT ADJ RX708, VHF HI-SCALE ADJ R104)
63-10651-19		3MEGΩ CONTROL (FOCUS R821)
63-10651-20	ACD	200KΩ CONTROL (VHF HI-SCALE ADJ R102)
78-2971		DC POWER JACK (J701)
95-3506		SWEEP TRANSFORMER (T501)
121-699		TRANSISTOR, PNP (2 USED ON AB, SWITCH DRIVER Q708, AUDIO SWITCH Q710 & 1 USED ON CD, AUDIO SWITCH Q710)
121-819		TRANSISTOR, NPN (2 REQ, Q501,Q602)
121-973		TRANSISTOR, PNP (VERT OUTPUT 2 Q603)
121-975		TRANSISTOR, NPN (5 USED ON AB, VERT DRIVER Q601, ERROR AMP 1 Q703, PS SWITCH Q706, CLOCK/PS INTERFACE Q707, CLOCK/AUDIO INTERFACE Q709 & 3 USED ON CD, VERT DRIVER Q601, ERROR AMP 1 Q700, PS SWITCH Q706)
121-990		TRANSISTOR, NPN (VIDEO OUTPUT Q801)
121-992-01		TRANSISTOR, NPN (AUDIO REGULATOR Q711)
121-994		TRANSISTOR, PNP (REGULATOR CHARGER QX702)
121-1021		TRANSISTOR, PNP (2 REQ, Q701,Q704)
121-1028-01		TRANSISTOR, NPN (HORIZ OUTPUT Q502)
136-120-01		FUSE, NORMAL LAG (FX701)
175-2038	BD	VHF-UHF TUNER (SEE 175-2038 PARTS LIST FOR COMPONENTS)
175-2238	AC	VHF TUNER (SEE 175-2238 PARTS LIST FOR COMPONENTS)
175-2239	AC	UHF TUNER (SEE 175-2239 PARTS LIST FOR COMPONENTS)
221-48		INTEGRATED CIRCUIT (SOUND IC1001)
221-201-03		INTEGRATED CIRCUIT (HORIZ-VERT COUNT-DOWN/LOW LEVEL SIGNAL AMP/PROCESSOR IC301)
OR		
221-201		INTEGRATED CIRCUIT (HORIZ-VERT COUNT-DOWN/LOW LEVEL SIGNAL AMP/PROCESSOR IC301)
221-202		INTEGRATED CIRCUIT (GAIN BLOCK/AUDIO/OUTPUT (IC 1002)
		AGC INVERTER PCB COMPONENTS (USED ON 5NB2X & 5NB5X)
63-10235-48	BD	100Ω FILM RESISTOR 5% 1/4W (R420)
63-10235-76	BD	1500Ω FILM RESISTOR 5% 1/4W (R417)
63-10235-94	BD	8200Ω FILM RESISTOR 5% 1/4W (R416)
63-10235-96	BD	10KΩ FILM RESISTOR 5% 1/4W (R419)
63-10236-08	BD	33KΩ FILM RESISTOR 5% 1/4W (R418)
63-10651-11	AC	25KΩ CONTROL (VHF HI-SCALE ADJ R104)
121-975	BD	TRANSISTOR, NPN (Q401, AGC INVERTOR)
		COILS & TRANSFORMERS
20-3117		COIL, RCF TUNABLE (L302)
20-3405		COIL, RCF TUNABLE (L801)
20-3619-03		COIL, RCF TUNABLE (2 REQ L301 & L303)
20-3755		COIL, RCF TUNABLE (L1001)
20-3907-03		COIL, RCF (4 REQ FOR A, 6 REQ FOR B & 5 REQ FOR DC)
95-2909-08		TRANSFORMER, RCF TUNABLE (T301)
95-3247		TRANSFORMER, RCF TUNABLE (T1001)
95-3506		TRANSFORMER, SWEEP (T501)
		CAPACITORS
22-3217		470pF CERAMIC DISC 20% 500V (4 REQ C505, C515, C712, C713)
22-5251		0.15μF CERAMIC DISC 20% 10V (2 REQ, C1001, C1014)
22-7150-07		47μF ELECTROLYTIC +100% -10% (C604)
22-7150-08		100μF ELECTROLYTIC +100% -10% (3 REQ C703, C705, C1009)
22-7150-11		470μF ELECTROLYTIC +100% -10% (C707)
22-7151-04		10μF ELECTROLYTIC +100% -10% 16V (4 REQ FOR A C704, C711, C809, C1017, 3 REQ FOR BCD C704, C809, C1017)
22-7151-05		22μF ELECTROLYTIC +100% -10% 16V (C706)
22-7151-07		47μF ELECTROLYTIC +100% -10% (4 REQ FOR AC C701, C715, C1004, C1012 & 3 REQ FOR BD C701, C715, C1004)
22-7151-08		100μF ELECTROLYTIC +100% -10% 16V (3 REQ, C509, C510, C708)
22-7151-09		220μF LYTIC +100% -10% 16V (C1013)
22-7151-11	BD	470μF LYTIC +100% -10% 16V (C1012)
22-7151-13		2200μF LYTIC +100% -10% 16V (C702)
22-7152-03		4.7μF LYTIC +100% -10% 25V (C406)
22-7153		1μF ELECTROLYTIC +100% -10% 50V (5 REQ, C504, C508, C710, C1008, C1011)
22-7156-03		4.7μF LYTIC +100% -10% 80V (C808)
22-7389-02		1μF ELECTROLYTIC 20% 25V (C404)
22-7389-03		2.2μF ELECTROLYTIC 20% 25V (C802)
22-7389-05		4.7μF ELECTROLYTIC 20% 25V (C401)
22-7390-02		0.47μF ELECTROLYTIC 20% 50V (1 REQ FOR AC C501 & 2 REQ FOR BD C401, C501)
22-7390-05		0.33μF ELECTROLYTIC +50% -10% 50V (3 REQ, C405, C803, C1016)
22-7440		0.0047μF CERAMIC DISC 10% 500V (2 REQ, C506, C807)
22-7459-01		0.0015μF TUBULAR 10% 100V (C806)
22-7547		0.1μF POLYESTER 10% 50V (C602)
22-7579		22μF ELECTROLYTIC 20% 16V (C607)
22-7613		100pF CERAMIC DISC 10% 50V (C603)
22-7613-04		220pF CERAMIC DISC 10% 50V (C608)
22-7613-09		560pF CERAMIC DISC 10% 50V (C805)
22-7613-12		1000pF CERAMIC DISC 10% 50V (1 REQ FOR ABC C716 & 3 REQ FOR D ONLY C315, C316, C716)
22-7613-24		10000pF CERAMIC DISC 10% 50V (C1005)
22-7614-04		220pF CERAMIC DISC 20% 50V (C1015)
22-7614-12		1000pF CERAMIC DISC 20% 50V (4 REQ FOR AC C313, C512, C709, C516 & 2 REQ FOR B & 3 REQ FOR D C313, C512, C516)
22-7614-14		1500pF CERAMIC DISC 20% 50V (2 REQ, C314, C402)
22-7614-16		2200pF CERAMIC DISC 20% 50V (4 REQ FOR AC C308, C309, C311, C312 & 5 REQ FOR BD C308, C309, C310, C311, C312)
22-7614-20	AB	4700pF CERAMIC DISC 20% 50V (C1010)
22-7614-24		0.01μF CERAMIC DISC 20% 50V (C511)
22-7615-06		10000pF CERAMIC DISC +80% -20% 50V (2 REQ, C310, C502)
22-7615-09		33000pF CERAMIC DISC +80% -20% 50V (2 REQ FOR AC C403, C503 & 1 REQ FOR BD C403)
22-7615-10		47000pF CERAMIC DISC +80% -20% 50V (3 REQ, C601, C801, C804)
22-7619-22		33pF CERAMIC DISC 5% 50V (C307)
22-7622-28		56pF CERAMIC DISC 10% 50V (C810)
22-7625-36		120pF CERAMIC DISC 5% 50V (C1007)
22-7631-02		3pF CERAMIC DISC 0.25pF 50V (C1003)
22-7631-07		8pF CERAMIC DISC 1/4pF 50V (3 REQ, C301, C302, C303)
22-7631-18		24pF CERAMIC DISC 5% 50V (C304)
22-7631-27		56pF CERAMIC DISC 5% 50V (C306)
22-7631-29		68pF CERAMIC DISC 5% 50V (C514)
22-7632-19		27pF CERAMIC DISC 10% 50V (C1002)
22-7639-10		12pF CERAMIC DISC 5% 50V (C1006)
22-7716-11		330μF ELECTROLYTIC 20% 10V (C606)
22-7775-24		0.1μF POLYESTER 20% 100V (C714)
22-7776-09		0.0056μF POLYESTER 5% 200V (C507)
22-7777-05		0.0027μF POLYESTER 10% 200V (C513)
		RESISTORS
63-7792		1500Ω 10% 1/2W (R817)
63-7834		15KΩ 10% 1/2W (R819)
63-7848		33KΩ 10% 1/2W (R820)
63-9922-68	A	10MEGΩ FILM 5% 1/4W (R1004)
63-10235		1Ω FILM 5% 1/4W (2 REQ, R609, R1011)
63-10235-08	BD	2.2Ω FILM 5% 1/4W (R723)
63-10235-10		2.7Ω FILM 5% 1/4W (R615)
63-10235-24	AC	10Ω FILM 5% 1/4W (RX511)

BLACK & WHITE TV CHASSIS (Cont.)

PART NO	REF CODE	DESCRIPTION
63-10235-28		15Ω FILM 5% 1/4W (2 REQ, R301, R815)
63-10235-40		47Ω FILM 5% 1/4W (2 REQ, R814, R1001)
63-10235-42		56Ω FILM 5% 1/4W (R1007)
63-10235-44		68Ω FILM 5% 1/4W (R1010)
63-10235-48		100Ω FILM 5% 1/4W (2 REQ, R411, R611)
63-10235-56		220Ω FILM 5% 1/4W (4 REQ, R607, R608, R716, R718)
63-10235-58		270Ω FILM 5% 1/4W (R515)
63-10235-62		390Ω FILM 5% 1/4W (R702)
63-10235-64		470Ω FILM 5% 1/4W (R822)
63-10235-66		560Ω FILM 5% 1/4W (R703)
63-10235-67		620Ω FILM 5% 1/4W (R408)
63-10235-68		680Ω FILM 5% 1/4W (R810)
63-10235-74		1200Ω FILM 5% 1/4W (R701)
63-10235-76		1500Ω FILM 5% 1/4W (R707) 4W R707
63-10235-80		2200Ω FILM 5% 1/4W (6 REQ FOR AD R401, R507, R509, R517, R601, R715 & 7 REQ FOR B R401, R507, R509, R517, R601, R715, R1009 & 5 REQ FOR C R507, R509, R517, R601, R715)
63-10235-83	AC	3KΩ FILM 5% 1/4W (R401)
63-10235-84		3300Ω FILM 5% 1/4W (3 REQ FOR AC R402, R618, R1002 & 2 REQ FOR BD R618, R1002)
63-10235-86	BD	3900Ω FILM 5% 1/4W (R402)
63-10235-87		4300Ω FILM 5% 1/4W (R705)
63-10235-88		4700Ω FILM 5% 1/4W (7 REQ FOR AB R512, R617, R709, R713, R717, R806, R807 & 6 REQ FOR CD R512, R617, R709, R717, R806, R807)
63-10235-90		5600Ω FILM 5% 1/4W (R514)
63-10235-92		6800Ω FILM 5% 1/4W (R809)
63-10235-93		7500Ω FILM 5% 1/4W (R510)
63-10235-94		8200Ω FILM 5% 1/4W (2 REQ, R405, R503)
63-10235-96		10KΩ FILM 5% 1/4W (4 REQ FOR AB R612, R619, R710, R711 & 3 REQ FOR CD R612, R619, R710)
63-10235-98		12KΩ FILM 5% 1/4W (R706)
63-10236		15KΩ FILM 5% 1/4W (R410)
63-10236-02		18KΩ FILM 5% 1/4W (2 18K OHM 5% 1/44)
63-10236-04		22KΩ FILM 5% 1/4W (2 REQ, R801, R802)
63-10236-08		33KΩ FILM 5% 1/4W (R1012)
63-10236-12		47KΩ FILM 5% 1/4W (3 REQ, R614, R804, R808)
63-10236-14		56KΩ FILM 5% 1/4W (R803)
63-10236-16		68KΩ FILM 5% 1/4W (R613)
63-10236-19		91KΩ FILM 5% 1/4W (R504)
63-10236-20		100KΩ FILM 5% 1/4W (3 REQ FOR AB R1003, R1005, R1006 & 2 REQ FOR CD R1005, R1006)
63-10236-22		120KΩ FILM 5% 1/4W (R406)
63-10236-28		220KΩ FILM 5% 1/4W (R506)
63-10236-30		270KΩ FILM 5% 1/4W (R606)
63-10236-33		360KΩ FILM 5% 1/4W (R502)
63-10236-36		470KΩ FILM 5% 1/4W (2 REQ, R407, R513)
63-10236-40		680KΩ FILM 5% 1/4W (R505)
63-10236-44		1MEGΩ FILM 5% 1/4W (R604)
63-10236-50		1.8MEGΩ FILM 5% 1/4W (R602)
63-10236-52		2.2MEGΩ FILM 5% 1/4W (R605)
63-10236-54		2.7MEGΩ FILM 5% 1/4W (R616)
63-10236-68	B	10MEGΩ FILM 5% 1/4W (R1004)
63-10243-21		7.5Ω FILM 5% 1/2W (R818)
63-10243-48		100Ω FILM 5% 1/2W (R704)
63-10243-50		120Ω FILM 5% 1/2W (R508)
63-10243-66	B	560Ω FILM 5% 1/2W (RX722)
63-10243-70		820Ω FILM 5% 1/2W (R720)
63-10243-96		10KΩ FILM 5% 1/2W (R816)
63-10422-56		22Ω WIRE-WOUND 10% 2W (R721)

PART NO	REF CODE	DESCRIPTION
63-10559-16	BD	4.7Ω FILM 5% 1/4W (2 REQ, RX719, RX725)
63-10559-24	BD	10Ω FILM 5% 1/4W (RX511)
63-10565-16	AC	4.7Ω FILM 5% 1/2W (2 REQ, RX719, RX725)
63-10832-58	A	270Ω FILM 5% 1W (RX722)
63-10875		2KΩ FILM 5% 1/8W (2 REQ, R302, R303)
63-10875-01		200Ω FILM 5% 1/8W (R304)
		DIODES
103-142-01	AB	LOW VOLT (14 REQ CR401, CR509, CR601, CR602, CR703, CR705, CR706, CR707, CR709, CR710, CR711, CR712, CR801, CR1001
103-142-01	CD	LOW VOLT (11 REQ CR401, CR509, CR601, CR602, CR703, CR705, CR706, CR707, CR711, CR712, CR801)
103-254		LOW VOLT (CR701)
103-261-04		LOW VOLT (CR502)
103-263		LOW VOLT (2 REQ, CR503, CR505)
103-279		ZENER (CR704)
103-279-07	A	ZENER (CR713)
103-279-16		ZENER 8.2V-0.5W (CR507)
103-279-19		ZENER 10V-0.5W (CR708)
103-279-20		ZENER 11V-0.5W (CR702)
103-295		LOW VOLT (CR501)
103-295-02		LOW VOLT (CR504)
103-334		ZENER 30V-250MW (CR506)
		MISCELLANEOUS COMPONENTS
12-7619		PCB RETAINING BRACKET (2 REQ)
19-849-01		FUSE MTG CLIP (2 REQ)
19-895	AC	TRANSISTOR RETAINING CLAMP (1 USED ON EACH 121-992-01 & 121-994)
19-984	BD	TRANSISTOR RETAINING CLAMP (1 USED ON EACH 121-992-01 & 121-994)
52-2417-09	AC	75Ω COAX CABLE
58-403		2 PIN MALE CONNECTOR HOUSING (3 USED ON ACD & 5 USED ON B)
58-403-01		3 PIN MALE CONNECTOR HOUSING (3 USED ON A & 2 USED ON BCD)
58-403-02		4 PIN MALE CONNECTOR HOUSING (2 USED ON AB & 1 USED ON CD)
58-403-04		6 PIN MALE CONNECTOR HOUSING (2 USED ON AC & 1 USED ON BD)
58-403-17	BD	8 PIN MALE CONNECTOR HOUSING
63-10651-11	AC	25KΩ CONTROL (VHF HI-SCALE ADJ R104)
79-91-32		#18 BLACK EXTRUDED SLEEVE
126-1897		SHIELD, TRANSFORMER (FOR T301)
126-1932-01	AC	HEAT SINK, TRANSISTOR (FOR 121-992-01)
126-1995		HEAT SINK, BRASS (2 REQ FOR CR701)
126-1996-01	AC	HEAT SINK, TRANSISTOR (FOR QX702)
126-2000-01	BD	HEAT SINK, TRANSISTOR (FOR 121-992-01)
126-2108	BD	HEAT SINK, TRANSISTOR (FOR QX702)
149-379		SLEEVE, FERRITE (FOR L501)
149-417	ABD	SLEEVE, FERRITE (2 REQ L704 & L705)
149-418	C	SLEEVE, FERRITE (2 REQ L704 & L705)
194-531		INSULATING STRIP, TRANSISTOR (FOR QX702)
205-303		HEAT SINK COMPOUND
		HARDWARE
114-803-01		6-20X3/16X1/4AF HEX WASHER HD THD FORM SCREW, TP B STAT BRNZ (2 MTS TRANSISTOR & HEAT SINK)
114-803-01		6-20X1/4X1/4AF HEX WASHER HD THD FORM SCREW, TP B STAT BRNZ

B & W TV CHASSIS 9NB1X

PART NO	REF CODE	DESCRIPTION
		0PRINCIPAL CHASSIS COMPONENTS
A-9036		CRT SOCKET ASSEMBLY
63-9228-05		HORIZ HOLD CONTROL (3K)
63-10521		CROSS TALK CONTROL (10K 2 REQ.)
63-10521-04		VERT SIZE CONTROL (300K)
63-10637-04		VERT HOLD CONTROL (20K)
63-10637-05		CONTRAST CONTROL (25Ω)
63-10637-06		BLACK LEVEL CONTROL (10K)
63-10817		B+ ADJUSTMENT CONTROL
95-3434		SWEEP TRANSFORMER
121-699		VERT OSC, VERT AMP I & ERROR AMP I TRANSISTORS PNP (3 REQ.)
121-699-01		BEAM CURRENT LIMITER TSTR PNP
121-819		HORIZ DRIVER, VERT OUTPUT I & VERT BLANKER NPN (3 REQ.)
121-895		SYNC AMP & SEP TSTRS NPN (2 REQ.)
121-973		VERT OUTPUT II TRANSISTOR PNP
121-975		ERROR AMP II & VERT AMP II TRANSISTORS NPN (2 REQ)
121-990		VIDEO OUTPUT TRANSISTOR NPN
121-992-01		REGULATOR TRANSISTOR NPN
121-1028-01		HORIZ OUTPUT TRANSISTOR NPN
136-120-07		FUSE 2.25 AMP 32V
221-141		INTEGRATED CIRCUIT HORIZ PROCESSOR
221-158		INTEGRATED CIRCUIT TV SOUND, ONE WATT SOUND
221-159		INTEGRATED CIRCUIT VIDEO IF AMP-DETECTOR & VIDEO I.F. AMP
		MINOR CHASSIS COMPONENTS
19-849-01		FUSE MOUNTING CLIP (2 REQ.)
19-895		CLAMP TRANSISTOR RETAINING
20-3117		COIL RCF, TUNABLE
20-3405		COIL RCF, TUNABLE IF
20-3619-03		COIL RCF, TUNABLE (2 REQ.)
20-3755		COIL RCF, TUNABLE 4.5 MHZ QUAD
20-3887-06		COIL RCF
20-3887-15		COIL RCF
20-3937-04		COIL RCF, TUNABLE 10 MM, SHIELDED
20-3984		COIL RCF PARASITIC SUPPRESSOR
22-3255		330pF CERAMIC DISC CAP ±10% 500V
22-4782		4700pF CERAMIC DISC CAP ±20% 500V (2 REQ.)
22-5251		0.15μF CERAMIC DISC CAP ±20% 10V
22-7071		0.047μF CAPACITOR 10% 50V
22-7150-09		220μF ELECTROLYTIC +100% -10% 10V
22-7151-04		10μF LYTIC +100% -10% 16V (5 REQ.)
22-7151-05		22μF LYTIC +100% -10% 16V (2 REQ.)
22-7151-07		47μF LYTIC +100% -10% 16V (3 REQ.)
22-7151-09		220μF LYTIC +00% -10% 16V (2 REQ.)
22-7152-07		47μF ELECTROLYTIC +100% -10% 25V
22-7152-13		2200μF ELECTROLYTIC +100% -10% 50V
22-7153		1μF ELECTROLYTIC +100+ -10% 50V
22-7153-04		10μF ELECTROLYTIC +100% -10% 50V
22-7179		0.022μF POLYESTER CAP 10% 50V
22-7244		0.0015μF CERAMIC DISC ±5% 500V (4 REQ.)
22-7313		10μF ELECTROLYTIC ±20% 25V
22-7389-03		2.2μF ELECTROLYTIC ±20% 5V
22-7390-05		0.33μF LYTIC +50% -10% 50V (2 REQ)
22-7433		0.001μF CERAMIC DISC ±20% 500V (4 REQ.)
22-7456		10μF ELECTROLYTIC ±20% 16V
22-7456-01		10μF CAPACITOR 20% 16V
22-7459-01		0.0015μF TUBULAR CAP 10% 100V
22-7547		0.1μF POLYESTER CAP 10% 50V (2 REQ.)
22-7579-06		220μF ELECTROLYTIC 20% 16V
22-7612		0.027μF POLYESTER CAP 5% 200V
22-7613		100pF CERAMIC DISC CAP 10% 50V
22-7613-04		220pF CERAMIC DISC CAP 10% 50V
22-7613-05		270pF CERAMIC DISC CAP 10% 50V
22-7613-11		820pF CERAMIC DISC CAP 10% 50V (2 REQ.)
22-7613-15		1800pF CERAMIC DISC CAP 10% 50V
22-7613-24		10000pF CERAMIC DISC 10% 50V (6 REQ.)
22-7614-20		4700pF CERAMIC DISC 20% 50V (2 REQ.)
22-7614-24		10000pF CERAMIC DISC 20% 50V (8 REQ.)
22-7614-26		15000pF CERAMIC DISC CAP 20μ 50V
22-7615-06		10000pF CERAMIC DISC CAP +80% -20% 50V (2 REQ.)
22-7615-08		22000pF CERAMIC DISC +80% -20% (3 REQ)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (4 REQ.)
22-7620-30		68pF CERAMIC DISC CAP 10% 50V
22-7620-38		150pF CERAMIC DISC CAP 10% 50V
22-7622-28		56pF CERAMIC DISC CAP 10% 50V
22-7625-36		120pF CERAMIC DISC CAP 5% 50V
22-7631-05		6pF CERAMIC DISC CAP ±0.25PF 50V
22-7631-06		7pF CERAMIC DISC CAP ±0.25PF 50V
22-7631-07		8pF CERAMIC DISC ±0.25PF 50V (2 REQ.)
22-7631-09		10pF CERAMIC DISC ±0.25PF 50V (2 REQ.)
22-7632-13		15pF CERAMIC DISC CAP 10% 50V (2 REQ.)
22-7639-18		27pF CERAMIC DISC CAP 5% 50V
22-7639-19		30pF CERAMIC DISC CAP 5% 50V
22-7674-01		4.7μF ELECTROLYTIC +100% -10%
22-7674-02		1μF ELECTROLYTIC +100% -10% 16V
22-7739-09		0.0056μF POLYESTER CAP 10% 100V
22-7763		2700pF CERAMIC DISC CAP 20% 500V
52-2417-02		75 OHM COAXIAL CABLE

PART NO	REF CODE	DESCRIPTION
63-1740		82Ω RESISTOR 1/2W 10%
63-1743		100Ω RESISTOR 1/2W 10%
63-1792		1500Ω RESISTOR 1/2W 10%
63-1834		15KΩ RESISTOR 1/2W 10%
63-1848		33KΩ RESISTOR 1/2W 10% (2 REQ.)
63-1928		2.7MEGΩ RESISTOR 1/2W 5%
63-4352		10-EGΩ RESISTOR 1/4W 5% (3 REQ.)
63-7968-59		9.1Ω RESISTOR 1/2W 5%
63-10182-56		3.3MEGΩ RESISTOR 1/4W 5%
63-10233-57		240Ω RESISTOR 1/4W 2%
63-10233-58		270Ω RESISTOR 1/4W 2%
63-10233-70		820Ω RESISTOR 1/4W 2%
63-10233-81		2400Ω RESISTOR 1/4W 2%
63-10234		15KΩ RESISTOR 1/4W 2%
63-10285		1Ω RESISTOR 1/4W 5%
63-10235-14		3.9MEGΩ RESISTOR 1/4W 5%
63-10235-24		10Ω RESISTOR 1/4W 5% (2 REQ.)
63-10235-28		15Ω RESISTOR 1/4W 5%
63-10235-34		27Ω RESISTOR 1/4W 5%
63-10235-40		5600Ω RESISTOR 1/4W 5% (3 REQ.)
63-10235-42		56Ω RESISTOR 1/4W 5%
63-10235-46		82Ω RESISTOR 1/4W 5%
63-10235-48		100Ω RESISTOR 1/4W 5% (2 REQ.)
63-10235-50		120Ω RESISTOR 1/4W 5% (3 REQ.)
63-10235-52		150Ω RESISTOR 1/4W 5%
63-10235-56		220Ω RESISTOR 1/4W 5% (2 REQ)
63-10235-60		330Ω RESISTOR 1/4W 5%
63-10235-64		470Ω RESISTOR 1/4W 5% (5 REQ.)
63-10235-66		560Ω RESISTOR 1/4W 5%
63-10235-72		1KΩ RESISTOR 1/4W 5% (2 REQ.)
63-10235-74		1200Ω RESISTOR 1/4W 5%
63-10235-76		1500Ω RESISTOR 1/4W 5% (4 REQ.)
63-10235-78		1800Ω RESESTER 1/4W 5%
63-10235-79		2KΩ RESISTOR 1/4W 5%
63-10235-80		2200Ω RESISTOR 1/4W 5% (2 REQ.)
63-10235-82		2700Ω RESISTOR 1/4W 5% (3 REQ.)
63-10235-84		3300Ω RESISTOR 1/4W 5% (3 REQ.)
63-10235-88		4700Ω RESISTOR 1/4W 5% (2 REQ.)
63-10235-90		5600Ω RESISTOR 1/4W 5%
63-10235-92		6800Ω RESISTOR 1/4W 5% (2 REQ.)
63-10235-96		10KΩ RESISTOR 1/4W 5% (3 REQ.)
63-10235-98		12KΩ RESISTOR 1/4W 5% (4 REQ.)
63-10236		15KΩ RESISTOR 1/4W 5% (3 REQ.)
63-10236-01		16KΩ RESISTOR 1/4W 5% (2 REQ.)
63-10236-02		18KΩ RESISTOR 1/4W 5%
63-10236-04		22KΩ RESISTOR 1/4W 5%
63-10236-06		27KΩ RESISTOR 1/4W 5%
63-10236-08		33KΩ RESISTOR 1/4W 5% (4 REQ.)
63-10236-12		47KΩ RESISTOR 1/4W 5%
63-10236-16		68KΩ RESISTOR 1/4W 5%
63-10236-18		82KΩ RESISTOR 1/4W 5%
63-10236-20		100KΩ RESISTOR 1/4W 5% (4 REQ.)
63-10236-22		120KΩ RESISTOR 1/4W 5% (2 REQ.)
63-10236-24		150KΩ RESISTOR 1/4W 5% (2 REQ.)
63-10236-26		180KΩ RESISTOR 1/4W 5%
63-10236-28		220KΩ RESISTOR 1/4W 5%
63-10236-32		330KΩ RESISTOR 1/4W 5%
63-10236-44		1MEGΩ RESESTOR 1/4W 5%
63-10236-46		1.2MEGΩ RESISTOR 1/4W 5%
63-10236-50		1.8MEGΩ RESISTOR 1/4W 5% (2 REQ.)
63-10236-54		2.7MEGΩ RESISTOR 1/4W 5%
63-10243-89		5100Ω RESISTOR 1/2W 5% (2 REQ.)
63-10244-05		24KΩ RESISTOR 1/2W 5%
63-10449-52		15Ω RESISTOR 7W 5%
63-10559-20		6.8Ω RESISTOR 1/4W 5%
63-10559-24		10Ω RESISTOR 1/4W 5% (2 REQ.)
63-10559-33		24Ω RESISTOR 1/4W 5%
63-10565-68		680Ω RESISTOR 1/2W 5%
78-2971		JACK, DC POWER
86-256		SHAKEPROOF TERMINAL
86-596-02		TERMINAL INSERT, PIN (13 REQ.)
86-752		TERMINAL PIN (8 REQ.)
95-2909-07		TRANSFORMER RCF, TUNABLE
95-3136-03		TRANSFORMER HORIZONTAL DRIVER
95-3247		4.5 MHZ INPUT TRANSFORMER
103-142-01		LOW VOLTAGE DIODE (8 REQ.)
103-261-02		LOW VOLTAGE DIODE (3 REQ.)
103-261-04		LOW VOLTAGE DIODE (5 REQ.)
103-279-09		ZENER DIODE 4.7V 0.5W
103-295-02		LOW VOLTAGE DIODE (2 REQ.)
126-1891-01		HEAT SINK TRANSISTOR (121-992-01)
126-1892		HEAT SINK TRANSISTOR (121-1028-01)
126-1895		SHIELD
126-1897		COIL SHIELD
126-1958		HEAT SINK TRANSISTOR (LARGE)
149-379		FERRITE SLEEVE
194-531		INSULATING STRIP TSTR (121-1028-01)
205-303		HEAT SINK COMPOUND (USED ON 121-992-01 & 121-1028-01)
		CHASSIS HARDWARE
114-686		SCREW, THD CUT 8-18X1/2 TP BT STAT BRONZE 1/4AF HEX WASHER HD (2 REQ)
114-802		SCREW, THD FORM 8-18X5/16 TP B STAT BRONZE 1/4AFHEX WASHER HD (2 REQ)
114-803		SCREW, THD FORM 6-20X1/4 TP B STAT BRONZE 1/4AF HEX WASHER HEAD

B & W TV CHASSIS

MODEL NO. 12YB1X	REFERENCE CODE A	MODEL NO. 12YB2X	REFERENCE CODE B

NOTE: THIS COMBINED PARTS LIST WILL ENABLE YOU TO MORE EASILY DETERMINE THE PART NUMBER OF PARTS USED ON EACH MODEL, CHASSIS OR ASSEMBLY. EACH OF THESE HAS BEEN ASSIGNED A REFERENCE CODE WHICH IS IN THE COLUMN IMMEDIATELY TO THE RIGHT OF THE PART NUMBER. THE ABSENCE OF A REFERENCE CODE DENOTES THE PART IS USED ON ALL UNITS LISTED.

PART NO	REF CODE	DESCRIPTION
		PRINCIPAL COMPONENTS
11-350-02		AC LINE CORD
63-9228-06		HORIZ. HOLD CONTROL (R524)
63-10521-04		VERTICAL SIZE CONTROL (R614)
63-10521-06		CONTRAST CONTROL
63-10521-07		BLACK LEVEL CONTROL
63-10651-16		AGC CONTROL (R407)
63-10926		BLACK LEVEL CONTROL (R811)
78-2206		CRT SOCKET (7 PIN)
95-3564		HORIZ SWEEP TRANSFORMER (WHEN USED ON 12YB1X, ONLY USE 22-7319 CAPACITOR CX523)
OR		
95-3446		HORIZ SWEEP TRANSFORMER (USED ON 12YB1X ONLY USE 22-2628 CAPACITOR)
121-699		TRANSISTOR, PNP (VERT. BIAS Q601)
121-765-01		TRANSISTOR, PNP SILICON (2 REQ Q1001, Q1002)
121-819		TRANSISTOR, NPN (HORIZ. DRIVE Q501, VERT. OUTPUT 1 Q604, VERT. RETRACE Q606) 3 REQ
121-973		TRANSISTOR, PNP (VERT. OUTPUT 2 Q603)
121-975		TRANSISTOR, NPN (VERT. DRIVE Q602)
121-985		TRANSISTOR, NPN (HORIZ. OUTPUT QX502)
121-990		TRANSISTOR, NPN (VIDEO OUTPUT Q801)
136-113-15		1 AMP FUSE 125V (FX701)
221-158		INTEGRATED CIRCUIT (SOUND 1C1001)
221-201-01		INTEGRATED CIRCUIT (HORIZ./VERT. COUNT-DOWN & LOW LEVEL SIGNAL AMP/PROCESSOR IC101)
		MINOR COMPONENTS
12-7880-01		CONTROL MTG BRACKET
19-840-01		FUSE HOLDER CLIP (2 REQ)
20-2806		PEAKING COIL (L802)
20-2808		PEAKING COIL (L704)
20-3117		COIL, RCF TUNABLE (L101)
20-3405		COIL, RCF TUNABLE (L801)
20-3619-03		COIL, RCF TUNABLE (L102 & L103) 2 REQ.
20-3755		COIL, RCF TUNABLE (L1001)
20-3866-02		COIL, CHOKE (LX701 & LX702) 2 REQ.
20-3887-26		COIL RCF
20-3907-03		COIL, RCF (L1002)
20-3907-11		COIL, RCF (L803)
22-2628	A	75pF CERAMIC DISC CAP 10% 3KV (USED ONLY ON 12YB1X CX523 WHEN 95-3446 SWEEP TRANSFORMER IS USED)
22-4905-01		0.01μF CERAMIC DISC CAP +80% -20% 500V (C504,C508 & C812) 3 REQ.
22-5251		0.15μF CERAMIC DISC CAP 20% 10V (C1016)
22-6138	B	390pF CERAMIC DISC CAP 10% 3KV (CX523)
22-7150-11		470μF ELECTROLYTIC +100% -10% 10V (C708)
22-7151-04		10μF ELECTROLYTIC +100% -10% 16V (C801 & C1011) 2 REQ.
22-7151-06		33μF ELECTROLYTIC +100% -10% 16V (C609)
22-7151-07		47μF ELECTROLYTIC +100% -10% 16V (C1001)
22-7151-08		100μF ELECTROLYTIC +100% -10% 16V (C709 & C1007) 2 REQ.
22-7151-09		220μF ELECTROLYTIC +100% -10% 16V (C1006)
22-7152-04		10μF ELECTROLYTIC +100% -10% 25V (C514)
22-7152-07		47μF ELECTROLYTIC +100% -10% 25V (C503 & C608) 2 REQ.
22-7152-08		100μF ELECTROLYTIC +100% -10% 25V (C515 & C516) 2 REQ.
22-7152-10		330μF ELECTROLYTIC +100% -10% 25V (C611)
22-7153		1μF ELECTROLYTIC +100% -10% 50V (C806)
22-7241		0.001μF CERAMIC DISC CAP +10% -10% 500V (C513,C701,C702,C703,C704) 5 REQ
22-7319		200pF CERAMIC DISC CAPACITOR ±10% 2KV (CX511 CX512 & USED AS CX523 ONLY ON 12YB1X ONLY WHEN SWEEP TRANSFORMER 95-3564 IS USED)
22-7389-05		4.7μF ELECTROLYTIC 20% 25V (C404)
22-7390-02		0.47μF CAP 20% 50V (C519)
22-7390-05		0.33μF ELECTROLYTIC +50-10% 50V (C405 & C803) 2 REQ.
22-7404-05		10μF NONPOLARIZED ELECTROLYTIC 20% 16V (C807)
22-7440		0.0047μF CERAMIC DISC 10% 500V (C813)
22-7456-01		10μF ELECTROLYTIC 20% 16V (C601)
22-7459-01		0.0015μF TUBULAR CAP 10% 100V (C809)
22-7547		0.1μF POLYESTER CAP 10% 50V (C603)
22-7613-04		220pF CERAMIC DISC CAP 10% 50V (C1004)
22-7613-05		270pF CERAMIC DISC CAP 10% 50V (C520)
22-7613-11		820pF CERAMIC DISC CAP 10% 50V (C811)
22-7613-12		1000pF CERAMIC DISC CAP 10% 50V (C403)
22-7613-16		2200pF CERAMIC DISC CAP 10% 50V (C501)
22-7613-24		10000pF CERAMIC DISC CAP 10% 50V (C518,C521,C607,C802,C804) 5 REQ
22-7614-24		10000pF CERAMIC DISC CAP 20% 50V (C808,C1003) 2 REQ
22-7614-26		15000pF CERAMIC DISC CAP 20% 50V (C1012)
22-7615-02		2200pF CERAMIC DISC CAP +80% -20% 50V (C109,C112,C113,C114) 4 REQ
22-7615-06		10000pF CERAMIC DISC CAP +80% -20% 50V (C111)
22-7615-10		47000pF CERAMIC DISC CAP +80% -20% 50V (C509,C602,C810,C815,C817,C1002, C1008,C1017,C1021) 10 REQ
22-7619-22		33pF CERAMIC DISC CAP 5% 50V (C107)
22-7620-38		150pF CERAMIC DISC CAP 10% 50V (C710)
22-7625-36		120pF CERAMIC DISC CAP 5% 50V (C1018)
22-7631-02		3pF CERAMIC DISC CAP 0.25PFD 50V (C1013)
22-7631-05		6pF CERAMIC DISC CAP 0.25PFD 50V (C1019)
22-7631-07		8pF CERAMIC DISC CAP 0.25PFD 50V (C101,C104,C106) 3 REQ
22-7631-18		24pF CERAMIC DISC CAP 5% 50V (C102)
22-7631-27		56pF CERAMIC DISC CAP 5% 50V (C108)
22-7631-29		68pF CERAMIC DISC 5% 50V (C522)
22-7632-19		27pF CERAMIC DISC CAP 10% 50V (C1014)
22-7639-16		22pF CERAMIC DISC CAP 5% 50V (C816)
22-7640-22		39pF CERAMIC DISC CAP 10% 50V (C604)
22-7669-06		1μF ELECTROLYTIC 20% 50V (C506)
22-7674-03		22μF ELECTROLYTIC +100% -10% 160V (CX711)
22-7674-04		47μF ELECTROLYTIC +100% -10% 160V (CX707)
22-7678		100μF ELECTROLYTIC +100% -10% 160V (CX706)
22-7682		0.1μF POLYESTER CAP 10% 200V (C507)
22-7708-04		4.7μF ELECTROLYTIC +50% -10% 25V (C1009)
22-7774-10		0.0068μF POLYESTER CAP 10% 100V (C502)
22-7774-16		0.022μF POLYESTER CAP 10% 100V (C517,C612) 2 REQ
22-7803		220μF ELECTROLYTIC 20% 16V (C606)
52-958-04		SPARK GAP (3 REQ)
58-403		2 PIN CONNECTOR
63-7764		330Ω RESISTOR 10% 1/2W (R527)
63-7792		1500Ω RESISTOR 10% 1/2W (R205)
63-7834		15KΩ RESISTOR 10% 1/2W (R204)
63-7848		33KΩ RESISTOR 10% 1/2W (R206)
63-10235-12		3.3Ω FILM RESISTOR 5% 1/4W (R620)
63-10235-14		3.9Ω FILM RESISTOR 5% 1/4W (R622)
63-10235-24		10Ω FILM RESISTOR 5% 1/4W (R815)
63-10235-28		15Ω FILM RESISTOR 5% 1/4W (R101,R624) 2 REQ
63-10235-32		22Ω FILM RESISTOR 5% 1/4W (R1008)
63-10235-38		39Ω FILM RESISTOR 5% 1/4W (R1011)
63-10235-40		47Ω FILM RESISTOR 5% 1/4W (R814)
63-10235-42		56Ω FILM RESISTOR 5% 1/4W (R627)
63-10235-46		82Ω FILM RESISTOR 5% 1/4W (R621)
63-10235-50		120Ω FILM RESISTOR 5% 1/4W (R821) W
63-10235-52		150Ω FILM RESISTOR 5% 1/4W (2 REQ R408,R817)
63-10235-56		220Ω FILM RESISTOR 5% 1/4W (3 REQ R501,R607)
63-10235-58		270Ω FILM RESISTOR 5% 1/4W (R625)
63-10235-62		390Ω FILM RESISTOR 5% 1/4W (R1002)
63-10235-64		470Ω FILM RESISTOR 5% 1/4W (2 REQ R609,R705)
63-10235-67		620Ω FILM RESISTOR 5% 1/4W (R809)
63-10235-72		1KΩ FILM RESISTOR 5% 1/4W (R503)
63-10235-74		1200Ω FILM RESISTOR 5% 1/4W (R623)
63-10235-76		1500Ω FILM RESISTOR 5% 1/4W (RX402)
63-10235-78		1800Ω FILM RESISTOR 5% 1/4W (R603)
63-10235-80		2200Ω FILM RESISTOR 5% 1/4W (2 REQ R502,R604)
63-10235-84		3300Ω FILM RESISTOR 5% 1/4W (2 REQ R628,R1005)
63-10235-86		3900Ω FILM RESISTOR 5% 1/4W (R504)

B & W TV CHASSIS (Cont.)

PART NO	REF CODE	DESCRIPTION
63-10235-88		4700Ω FILM RESISTOR 5% 1/4W (3 REQ R401,R805,R810)
63-10235-94		8200Ω FILM RESISTOR 5% 1/4W (5 REQ R405,R519,R526,R812,R813)
63-10235-96		10KΩ FILM RESISTOR 5% 1/4W (R406)
63-10235-98		12KΩ FILM RESISTOR 5% 1/4W (R207)
63-10236		15KΩ FILM RESISTOR 5% 1/4W (3 REQ R404,R605,R1001)
63-10236-04		22KΩ FILM RESISTOR 5% 1/4W (R617)
63-10236-06		27KΩ FILM RESISTOR 5% 1/4W (R824)
63-10236-07		30KΩ FILM RESISTOR 5% 1/4W (R802)
63-10236-10		39KΩ FILM RESISTOR 5% 1/4W (2 REQ R601,R602)
63-10236-12		47KΩ FILM RESISTOR 5% 1/4W (2 REQ R525,R615)
63-10236-14		56KΩ FILM RESISTOR 5% 1/4W (R803)
63-10236-18		82KΩ FILM RESISTOR 5% 1/4W (2 REQ R804,R806)
63-10236-19		91KΩ FILM RESISTOR 5% 1/4W (2 REQ R521,R801)
63-10236-22		120KΩ FILM RESISTOR 5% 1/4W (R807)
63-10236-26		180KΩ FILM RESISTOR 5% 1/4W (R825)
63-10236-28		220KΩ FILM RESISTOR 5% 1/4W (R522)
63-10236-33		360KΩ FILM RESISTOR 5% 1/4W (R523)
63-10236-36		470KΩ FILM RESISTOR 5% 1/4W (2 REQ R808,R827)
63-10236-40		680KΩ FILM RESISTOR 5% 1/4W (R520)
63-10236-44		1MEGΩ FILM RESISTOR 5% 1/4W (2 REQ)
63-10236-48		1.5MEGΩ FILM RESISTOR 5% 1/4W (R518)
63-10236-50		1.8MEGΩ FILM RESISTOR 5% 1/4W (R608)
63-10236-54		2.7MEGΩ FILM RESISTOR 5% 1/4W (R606)
63-10243-48		100Ω FILM RESISTOR 5% 1/2W (2 REQ R505,R506)
63-10243-58		270Ω FILM RESISTOR 5% 1/2W (2 REQ R624,R625)
63-10243-68		680Ω FILM RESISTOR 5% 1/2W (R1010)
63-10243-82		2700Ω FILM RESISTOR 5% 1/2W (7 REQ R507,R508,R509,R510, R819,R820,R822)
63-10243-98		12KΩ FILM RESISTOR 5% 1/2W (2 REQ R618,R706)
63-10244		15KΩ FILM RESISTOR 5% 1/2W (2 REQ R619,R704)
63-10244-20		100KΩ FILM RESISTOR 5% 1/2W (RX701)
63-10559-12		3.3Ω FILM RESISTOR 5% 1/4W (RX511)
63-10559-24		10Ω FILM RESISTOR 5% 1/4W (RX403)
63-10559-32		22Ω FILM RESISTOR 5% 1/4W (RX629)
63-10559-72		1KΩ FILM RESISTOR 5% 1/4W (RX711)
63-10565		1Ω FILM RESISTOR 5% 1/2W
63-10565-22		8.2Ω FILM RESISTOR 5% 1/2W (1 EA, 6 EA B)
63-10565-26		12Ω FILM RESISTOR 5% 1/2W (RX514)
63-10565-28		15Ω FILM RESISTOR 5% 1/2W (RX703,RX708,RX709,RX710 4 REQ)
63-10565-34		27Ω FILM RESISTOR 5% 1/2W (RX513)
63-10832-30		18Ω FILM RESISTOR 5% 1W (RX515)
63-10875		2KΩ FILM RESISTOR 5% 1/8W (2 REQ R103,R104)
63-10875-01		200Ω FILM RESISTOR 5% 1/8W (R102)
63-10918		180Ω WIRE-WOUND RESISTOR 5% 7W (RX702)
63-10925		8.2MEGΩ FILM RESISTOR 5% 1/4W
76-2166		CONTROL SHAFT
79-75-16		#10 CLEAR EXTRUDED SLEEVE
79-91-16		#18 BLACK EXTRUDED SLEEVE
79-317-04		HEAT SHRINK SLEEVE (3/16" DIA)
79-317-05		HEAT SHRINK SLEEVE (1/4" DIA)
83-8555		INSULATING STRIP
86-256		SHAKEPROOF LOCKING TERMINAL
86-319		TERMINAL
86-596-02		INSERT PIN TERMINAL (3 EA A, 6 EA B)
86-596-04		INSERT PIN TERMINAL (7 REQ)
86-818		MALE TERMINAL
93-2107		WASHER, NM SHOULDER
93-2108		WASHER METAL FLAT
95-2909-08		TRANSFORMER, RCF TUNABLE (T101)
95-3247		TRANSFORMER, RCF TUNABLE (T1001)
103-142-01		DIODE, LOW VOLT (5 REQ CR501, CR601, CR602, CR604, CR801)
103-261-02		DIODE, LOW VOLT (4 REQ CR503, CR603, CR705, CR706)
103-261-04		DIODE, LOW VOLT (4 REQ CRX701, CRX702, CRX703, CRX704)
103-263		DIODE, LOW VOLT (CR505)
103-279		DIODE, ZENER 2.4V-0.5W (CR1001)
103-295-02		DIODE, HI VOLT
112-1691		4-40X1/2 RECESSED CROSS-CUT MACHINE SCREW CADMIUM
126-1897		SHIELD COIL
126-2005-01		TRANSISTOR HEAT-SINK
149-379		FERRITE SLEEVE (2 REQ)
149-509		FERRITE BEAD CORE (3 REQ)
194-572-01		INSULATOR PLASTIC (2 REQ)
194-920		TRANSISTOR INSULATING STRIP
		HARDWARE
54-355		6-32X1/4AF HEX NUT W/WASHER
112-1717		6-32X3/8 RECESSED CROSS-CUT PAN HD SCREW (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD SCREW TYPE BT STAT BRONZE (2 REQ)

BLACK & WHITE CHASSIS

SERVICE NO.	REFERENCE CODE
12YB3X	A
12YB4X	B
12YB5X	C

NOTE: THIS COMBINED PARTS LIST WILL ENABLE YOU TO MORE EASILY DETERMINE THE PART NUMBER OF PARTS USED ON EACH MODEL, CHASSIS OR ASSEMBLY. EACH OF THESE HAS BEEN ASSIGNED A REFERENCE CODE WHICH IS IN THE COLUMN IMMEDIATELY TO THE RIGHT OF THE PART NUMBER. THE ABSENCE OF A REFERENCE CODE DENOTES THE PART IS USED ON ALL UNITS LISTED.

PART NO	REF CODE	DESCRIPTION
		COILS
20-2806		PEAKING COIL (L802)
20-2834		RCF COIL (L704)
20-3117		COIL, RCF TUNABLE (L101)
20-3405	A	COIL, RCF TUNABLE (L801)
20-3619-03		RCF TUNABLE COIL (2 REQ, L102 & L103)
20-3755		COIL, RCF TUNABLE (L1001)
20-3866-04		CHOKE COIL (2 REQ, L701 & L702)
20-3907-11		RCF COIL (L803)
		CAPACITORS
22-4905-01		0.01µF +80% -20% 500V CERAMIC DISC (4 REQ, C504,C508,C612 & C812)
22-5251		0.15µF CERAMIC DISC CAP 20% 10V (2 REQ, C1002 & C1016)
22-7150-11		470µF ELECTROLYTIC +100%-10% 10V(C708)
22-7151-04		10µF ELECTROLYTIC +100% -10% 16V (C801 & C1011) 2 REQ.
22-7151-07		47µF ELECTROLYTIC +100%-10% 16V(C1001)
22-7151-09		220µF LYTIC +100% -10% 16V (C1006)
22-7152-04		10µF LYTIC +100% -10% 25V (C514)
22-7152-07		47µF +100% -10% 25V LYTIC (C503)
22-7152-08		100µF ELECTROLYTIC +100% -10% 25V (2 REQ, C515 & C516)
22-7153		1µF ELECTROLYTIC +100%-10% 50V(C806)
22-7241		0.001µF CERAMIC DISC CAP +10%-10% 500V (5 REQ, C513,C701,C702,C703 & C704)
22-7319		200pF ±10% 2000V CERAMIC DISC (3 REQ, CX511,CX512, &CX523)
22-7389-05		4.7µF ELECTROLYTIC 20% 25V (C404)
22-7390-02		0.47µF CAP 20% 50V (C519)
22-7390-05		0.33µF ELECTROLYTIC +50-10% 50V (2 REQ, C405 & C803)
22-7404-05		10µF NONPOLARIZED ELECTROLYTIC 20% 16V (C807)
22-7431-04		0.001µF ±20% CERAMIC DISC (CX713)
22-7440		0.0047µF CERAMIC DISC 10% 500V (C813)
22-7456-01		10µF ELECTROLYTIC 20% 16V (C601)
22-7459-01	A	0.0015µF TUBULAR CAP 10% 100V (C809)
22-7547		0.1µF POLYESTER CAP 10% 50V (C603)
22-7613		100pF 10% 50V CERAMIC DISC (C1022)
22-7613-05		270pF CERAMIC DISC CAP 10% 50V (C520)
22-7613-16		2200pF CERAMIC DISC CAP 10% 50V (C501)
22-7613-24		10000pF CERAMIC DISC CAP 10% 50V (C518,C521,C607,C802,C804) 5 REQ
22-7614-16		2200pF 20% 50V CERAMIC DISC (4 REQ, C109,C112,C113, & C114)
22-7614-24		10000pF CERAMIC DISC CAP 20% 50V (2 REQ C808 & C1003)
22-7614-26		15000pF CERAMIC DISC CAP 20% 50V (C1012)
22-7615-06		10000pF CERAMIC DISC CAP +80% -20% 50V (C111)
22-7615-10		47000pF +80% -20% 50V CERAMIC DISC (8 REQ, C509,C602,C810,C815,C817, C1008,C1017 & C1021)
22-7619-22		33pF CERAMIC DISC CAP 5% 50V (C107)
22-7625-36		120pF CERAMIC DISC CAP 5% 50V (C1018)
22-7631-02		3pF CERAMIC DISC CAP 0.25pF 50V (C1013)
22-7631-05		6pF CERAMIC DISC CAP 0.25pF 50V (C1019)
22-7631-07		8pF ±0.25pF 50V CERAMIC DISC (C101)
22-7631-27		56pF CERAMIC DISC CAP 5% 50V (C108)
22-7639-16		22pF CERAMIC DISC CAP 5% 50V (C816)
22-7674-03		22µF LYTIC +100% -10% 160V (CX711)
22-7678		100µF +100% -10% ELECTROLYTIC (2 REQ, CX706 & CX707)
22-7682		0.1µF POLYESTER CAP 10% 200V (C507)
22-7708-04		4.7µF LYTIC +50% -10% 25V (C1009)
22-7710-04		4.7µF +50-10%-50V ELECTROLYTIC (C506)
22-7742-02		220pF 10% 50V CERAMIC TUBULAR (1004)
22-7742-09		820pF 10% 50V CERAMIC TUBULAR (C811)
22-7742-10		1000pF 10% 50V CERAMIC TUBULAR (C403)
22-7743-32		68pF 5% 50V CERAMIC TUBULAR (C522)
22-7746-11		8.2pF 10% 50V CERAMIC TUBULAR (2 REQ, C104 & C106)
22-7746-21		24pF 5% 50V CERAMIC TUBULAR (C102)
22-7746-22		27pF 5% 50V CERAMIC TUBULAR (C1014)
22-7748-26		39pF 5% 50V CERAMIC TUBULAR (C604)
22-7751-38		150pF 5% 50V CERAMIC TUBULAR (C710)
22-7774-10		0.0068µF 10% 100V POLYESTER (C502)
22-7774-16		0.022µF 10% 100V POLYESTER (2 REQ, C517 & C612)
22-7859-07		33µF 20% 16V ELECTROLYTIC (C609)
22-7859-09		100µF 20% 16V ELECTROLYTIC (2 REQ, C709 & C1007)
22-7860-08		47µF 20% 25V ELECTROLYTIC (C608)
22-7860-11		330µF 20% 25V ELECTROLYTIC (C611)
22-7887		220µF 20% 16V ELECTROLYTIC (C606)
		RESISTORS & CONTROLS
63-7764		330Ω 10% 1/2W (R527)
63-7792		1500Ω 10% 1/2W (R205)
63-7834		15KΩ 10% 1/2W (R204)
63-7848		33KΩ 10% 1/2W (R206)
63-9228-06		HORIZ. HOLD CONTROL (R524)
63-10235-12		3.3Ω FILM 5% 1/4W (R620)
63-10235-14		3.9Ω FILM 5% 1/4W (R622)
63-10235-24		10Ω FILM 5% 1/4W (R815)
63-10235-28		15Ω FILM 5% 1/4W (R101,R624) 2 REQ
63-10235-32		22Ω FILM 5% 1/4W (R1008)
63-10235-38		39Ω FILM 5% 1/4W (R1011)
63-10235-40		47Ω FILM 5% 1/4W (R814)
63-10235-42		56Ω FILM 5% 1/4W (R627)
63-10235-46		82Ω FILM 5% 1/4W (R621)
63-10235-48	BC	100Ω 1/4W 5% FILM (R823)
63-10235-50		120Ω FILM 5% 1/4W (R821)
63-10235-52		150Ω FILM 5% 1/4W (2 REQ R408,R817)
63-10235-56		220Ω 1/4W 5% FILM (3 REQ, R501,R607, & R705)
63-10235-58		270Ω FILM 5% 1/4W (R625)
63-10235-60	BC	330Ω 1/4W 5% FILM (R826)
63-10235-62		390Ω 1/4W 5% FILM (2 REQ, R1002 & R1012)
63-10235-64		470Ω FILM 5% 1/4W (2 REQ R609,R705)
63-10235-67		620Ω FILM 5% 1/4W (R809)
63-10235-72		1KΩ FILM 5% 1/4W (R503)
63-10235-74		1200Ω FILM 5% 1/4W (R623)
63-10235-76		1500Ω FILM 5% 1/4W (RX408)
63-10235-78		1800Ω FILM 5% 1/4W (R603)
63-10235-80		2200Ω FILM 5% 1/4W (2 REQ R502,R604)
63-10235-84		3300Ω FILM 5% 1/4W (2 REQ R628,R1005)
63-10235-86		3900Ω FILM 5% 1/4W (R504)
63-10235-88		4700Ω FILM 5% 1/4W (3 REQ R401,R805,R810)
63-10235-89		5100Ω 1/4W 5% FILM (R526)
63-10235-94		8200Ω 1/4W 5% FILM (4 REQ, R405,R519,R812, & R813)
63-10235-96		10KΩ FILM 5% 1/4W (R406)
63-10235-98		12KΩ 1/4W 5% FILM (2 REQ, R207 & R818)
63-10236		15KΩ FILM 5% 1/4W (3 REQ R404,R605,R1001)
63-10236-04		22KΩ FILM 5% 1/4W (R617)
63-10236-06		27KΩ FILM 5% 1/4W (R824)
63-10236-07		30KΩ FILM 5% 1/4W (R802)
63-10236-10		39KΩ FILM 5% 1/4W (2 REQ R601,R602)
63-10236-12		47KΩ FILM 5% 1/4W (2 REQ R525,R615)
63-10236-14		56KΩ FILM 5% 1/4W (R803)
63-10236-18		82KΩ FILM 5% 1/4W (2 REQ R804,R806)
63-10236-19		91KΩ FILM 5% 1/4W (2 REQ R521,R801)
63-10236-22		120KΩ FILM 5% 1/4W (R807)
63-10236-26		180KΩ 1/4W 5% FILM (2 REQ, R529 & R825)
63-10236-28		220KΩ FILM 5% 1/4W (R522)
63-10236-33		360KΩ FILM 5% 1/4W (R523)
63-10236-36		470KΩ FILM 5% 1/4W (2 REQ R808,R827)
63-10236-40		680KΩ FILM 5% 1/4W (R520)
63-10236-44		1 MEGΩ 1/4W 5% FILM (2 REQ, R612 & R613)
63-10236-52		2.2 MEGΩ 1/4 5% FILM (R608)
63-10236-54		2.7MΩ FILM 5% 1/4W (R606)
63-10236-66	BC	8.2 MEGΩ 1/4W 5% FILM (R610)
63-10243-44		68Ω 1/2W 5% (3 REQ FOR X, R505,R506, & R517, 1 REQ FOR Y & Z, R506)
63-10243-58		270Ω FILM 5% 1/2W (2 REQ R624,R625)
63-10243-68		680Ω FILM 5% 1/2W (R1010)
63-10243-80	A	2200Ω 1/2W 5% FILM (3 REQ, R507, R508, & R509)
63-10243-82		2700Ω 1/2W 5% FILM (3 REQ R819, R820, & R822)
63-10243-90	A	5600Ω 1/2W 5% FILM (2 REQ, R618 & R619)
63-10243-98		12KΩ 1/2W 5% FILM (R706)
63-10244		15KΩ 1/2W 5% FILM (R704)
63-10244-20		100KΩ FILM 5% 1/2W (RX701)
63-10521-04		VERTICAL SIZE CONTROL (R614)
63-10521-06		CONTRAST CONTROL (R816)
63-10521-07		BLACK LEVEL CONTROL (R811)
63-10559-12		3.3Ω FILM 5% 1/4W (RX511)
63-10559-32		22Ω 1/4W 5% FILM (1 REQ FOR X & Z RX629, 2 REQ FOR Y RX403 & RX629)

BLACK & WHITE TV CHASSIS (Cont.)

PART NO	REF CODE	DESCRIPTION
63-10559-72		1000Ω 1/4W 5% FILM (1 REQ FOR X RX711, 2 REQ FOR Y & Z RX707 & RX711)
63-10565		1Ω 1/2W 5% FILM (RX512)
63-10565-22		8.2Ω 1/2W 5% FILM (RX1009)
63-10565-26	A	12Ω 1/2W 5% FILM (5 REQ, RX703,RX708,RX709,RX710 & RX712)
63-10565-28	A	15Ω 1/2W 5% FILM (3 REQ, RX514,RX515, & RX516)
63-10565-40		47Ω 1/2W 5% FILM (RX513)
63-10651-16		AGC CONTROL (R407)
63-10832-31	BC	20Ω 1W 5% FILM (RX708)
63-10832-51	BC	130Ω 1W 5% FILM (R505)
63-10832-85	BC	3600Ω 1W 5% FILM (R507)
63-10836-39	BC	45Ω 2W 5% FILM (2 REQ, RX514, & RX709)
63-10836-93	BC	7500Ω 2W 5% FILM (R508)
63-10837-01	BC	16KΩ 2W 5% FILM (R618)
63-10857-13		ROTARY CONTROL, (AGC) (R407)
63-10875		2KΩ FILM 5% 1/8W (2 REQ R103,R104)
63-10875-01		200Ω FILM 5% 1/8W (R102)
63-10918		180Ω WIRE-WOUND 5% 7W (RX702)
63-10925	A	8.2 MEGΩ 1/4W 5% FILM (R610)
63-10926		ON-OFF VOLUME CONTROL (RX202)
		TRANSFORMERS
95-2909-08		RCF TUNABLE (T101)
95-3247		RCF TUNABLE (T1001)
95-3564A		HORIZ. SWEEP (TX501)
		DIODES
103-142-01		LOW VOLT (5 REQ CR501,CR601,CR602,CR604,CR8[illegible])
103-261-02		LOW VOLT (4 REQ CR503,CR603,CR705,CR706)
103-261-04		LOW VOLT (4 REQ CRX701,CRX702,CRX703,CRX704)
103-263		LOW VOLT (CR505)
103-279		ZENER 2.4V 1/2W (CR1001)
103-295-02		HIGH VOLTAGE (CR504)
		TRANSISTORS
121-699		VERT. BIAS, PNP (Q601)
121-765-01		SHUNT REGULATOR & CURRENT LIMITER PNP (2 REQ Q1001 Q1002)
121-819		HORIZ. DRIVE & VERT. OUTPUT 1 (2 REQ, Q501 & Q604)
121-819-01		VERTICAL RETRACE NPN (Q606)
121-973		VERT. OUTPUT 2, NPN (Q603)
121-975		VERT. DRIVE NPN (Q602)
121-985		HORIZ. OUTPUT NPN (QX502)
121-990		VIDEO OUTPUT NPN (Q801)
		FUSES
136-113-15		1 AMP FUSE 125V (FX701)
		INTEGRATED CIRCUITS
221-158		SOUND (IC1001)
221-201-03		HORIZ/VERT COUNTDOWN, LOW LEVEL SIGNAL AMPLIFIER & PROCESSOR IC (IC101)
		FILTERS
224-23	BC	CERAMIC 4.5 MHz TRAP (Y801)
		MINOR COMPONENTS
A-11002		WIRE & TERMINAL ASSEMBLY, RED
11-350-02		AC LINE CORD
19-840-01		FUSE HOLDER CLIP (2 REQ)
52-958-04		SPARK GAP (3 REQ)
76-2166		CONTROL SHAFT (2 REQ)
78-2206		CRT SOCKET (7 PIN)
79-91-16		#18 BLACK EXTRUDED SLEEVE (2 REQ)
79-317-04	A	3/16" HEAT SHRINKABLE SLEEVE
86-256		SHAKEPROOF LOCKING TERMINAL
86-596-02		INSERT PIN TERMINAL (10 USED ON 12YB3X & 7 USED ON 12YB4X & 12 USED ON 12YB5X)
86-686	BC	MALE TERMINAL, WIRE MOUNTED
86-818		MALE TERMINAL (2 REQ)
126-1897		SHIELD COIL
126-2005-01		TRANSISTOR HEAT-SINK
149-379		FERRITE SLEEVE (2 USED ON 12YB3X & 1 USED ON 12YB4X & 3 USED ON 12YB5X)
149-509		FERRITE BEAD CORE (3 REQ)
194-920		TRANSISTOR INSULATING STRIP
205-303		HEAT SINK COMPOUND
		HARDWARE
54-354		4-40X0.09X1/4AF HEX HD W/WASHER MACHINE NUT, CADMIUM (2 REQ)
93-2107		SHOULDER WASHER NM (2 REQ)
93-2108		FLAT METAL WASHER (2 REQ)
112-1697-05		4-40X0.500 RECESSED CROSS-CUT PAN HD MACHINE SCREW, STAT BRNZ (2 REQ)
114-686		8-18X1/2X1/4AF HEX WASHER HD SCREW, TP BT STAT BRONZE (2 REQ)

BLACK & WHITE TV CHASSIS 19MB2X

PART NO	REF CODE	DESCRIPTION
		PRINCIPAL COMPONENTS
11-350-01		LINE CORD 2 CONDUCTOR, POLORIZED
63-10505-02		VERTICAL HOLD CONTROL
63-10636		AGC DELAY CONTROL
63-10731		VERTICAL SIZE CONTROL
63-10862		CONTRAST CONTROL
95-3385		HORIZONTAL DRIVER TRANSFORMER
121-446		TRANSISTOR, PNP (HORIZ OSCILLATOR)
121-499		TRANSISTOR, NPN (AGC AMPLIFIER)
121-503		TRANSISTOR, NPN (1ST IF)
121-504		TRANSISTOR, NPN (2ND IF)
121-524		TRANSISTOR, NPN (3RD IF)
121-699		TRANSISTOR, PNP (AGC DELAY, AGC GATE, VERT. OSC. 2, VERT. AMP. 1, 3 REQ.)
121-765-01		TRANSISTOR, PNP (Q1003)
121-766-01		TRANSISTOR, NPN (Q1002)
121-819		TRANSISTOR, NPN (VERT. DRIVER, HORIZ. DRIVER, VERT. BLANK., 3 REQ.)
121-868		TRANSISTOR, NPN (VIDEO OUTPUT)
121-895		TRANSISTOR, NPN (VIDEO DRIVER)
121-975		TRANSISTOR, NPN (AMP. 2, ANTI LOCK OUT, HORIZ. AFC, VERT. DRIVER, SYNC., VERT. OSC. 2, AGC PL, NOISE, 7 REQ.)
121-985		TRANSISTOR, NPN (HORIZ. OUTPUT)
121-1035		TRANSISTOR, NPN (VERT. OUTPUT 1)
121-1036		TRANSISTOR, PNP (VERT. OUTPUT 2)
136-116-19		1AMP TIME DELAY FUSE 125V
221-48		INTEGRATED CIRCUIT (SOUND)
		MINOR COMPONENTS
A-8419-2		CRT GROUND CONTACT ASSEMBLY
S-94251-1		RCF TUNABLE COIL ASSBLY (L104)
S-94251-10		RCF TUNABLE COIL ASSEMBLY (L108)
12-7207		METAL BRKT (2 REQ. PC BOARD SUPPORT)
12-7343-02		METAL BRACKET, CONTACT ASSEMBLY MT
12-8039		BRACKET (MTS 63-10862 CONTRAST CONT)
19-840		CLIP, FUSE HOLDER (2 REQ)
19-890		RETAINING CLIP
20-2707		PEAKING COIL (2 REQ. L113)
20-2806		PEAKING COIL (L802)
20-2811		PEAKING COIL (L111)
20-2813		PEAKING COIL (L114)
20-2832		PEAKING COIL
20-3405		RCF TUNABLE COIL (IF L801)
20-3619-03		RCF TUNABLE COIL (L106 & L107)
20-3755		RCF TUNABLE COIL (4.5 MHZ QUAD)
20-3831-06		RCF COIL (L503)
20-3866-03		CHOKE COIL (LX701 & LX702)
22-2628		75pF CERAMIC DISC CAP ±10% 3000V
22-5115		0.082µF TUBULAR CAP ±10% 50V
22-5251		0.150µF CERAMIC DISC CAP G20% 10V.
22-5585		750pF CERAMIC DISC CAP ±10% 500V
22-5688		1000pF CERAMIC DISC CAP ±10% 500V
22-5971		0.0033µF POLYESTER CAP ±10% 50V
22-6163		100pF CERAMIC DISC CAP ±10% 500V
22-6186		40pF CERAMIC DISC CAP ±10% 500V
22-6447-03		0.047µF POLYESTER CAP ±20% 100V (3 REQ)
22-6802		0.200µF POLYESTER CAP ±5% 400V
22-7151-05		22µF +100-10% 16V ELECTROLYTIC
22-7151-07		47µF +100-10% 16V ELECTROLYTIC
22-7151-08		100µF +100-10% 16V ELECTROLYTIC
22-7152-05		22µF +100-10% 25V ELECTROLYTIC
22-7152-08		100µF +100-10% 25V ELECTROLYTIC
22-7152-10		330µF +100-10% 25V ELECTROLYTIC
22-7153		1µF +100-10% 50V ELECTROLYTIC
22-7154-07		47µF +100-10% 35V ELECTROLYTIC
22-7154-08		100µF +100-10% 35V ELECTROLYTIC
22-7154-09		220µF +100-10% 35V ELECTROLYTIC
22-7154-10		330µF +100-10% 35V ELECTROLYTIC
22-7202		0.039µF POLYESTER CAP ±10% 50V
22-7241		0.001µF CERAMIC DISC CAP ±10% 500V (7 REQ.)
22-7300		600pF CERAMIC DISC CAP ±5% 2000V (5 REQ.)
22-7389-03		2.200µF ±20% 25V ELECTROLYTIC
22-7389-08		470µF ±20% 25V ELECTROLYTIC
22-7390-03		3.300µF ±20% 50V ELECTROLYTIC
22-7390-05		0.330µF +50% -10% 50V ELECTROLYTIC
22-7390-08		22µF ±20% 50V ELECTROLYTIC (3 REQ.)
22-7431-04		0.001µF ±20% CERAMIC DISC CAP
22-7440		0.0047µF CERAMIC DISC CAP ±10% 500V (3 REQ.)
22-7459		0.0033µF TUBULAR CAP ±10% 100V
22-7459-01		0.0015µF TUBULAR CAP ±10% 100V
22-7579		22µF ±20% 16V ELECTROLYTIC
22-7586		0.330µF POLYESTER CAP ±10% 50V
22-7613-12		1000pF 10% 50V CERAMIC DISC CAP
22-7613-23		8200pF CERAMIC DISC CAP 10% 50V
22-7613-26		0.015µF CREAMIC DISC CAP 10% 50V
22-7615-10		47000pF CERAMIC DISC CAP +80-20% 50V
22-7621-21		30pF CERAMIC DISC CAP 5% 50V
22-7666-04		0.012µF CERAMIC DISC CAP 10% 100V
22-7679-01		250pF CERAMIC DISC CAP ±5% 50V
22-7682		0.1µF POLYESTER CAP ±10% 200V (2 REQ.)
22-7682-01		0.1µF POLYESTER CAP ±20% 200V (2 REQ.)
22-7698		0.39µF POLYESTER CAP ±10% 100V
22-7724		0.02µF CERAMIC DISC CAP +80 -20% 500V
22-7760		220µF LYTIC +100% -10% 200V (2 REQ.)
52-2417-01		75 OHM COAXIAL CABLE
54-992		1/4-32X7/16AF HEX MACHINE NUT (MTS 63-10862 CONTRAST CONT)
63-1724		36Ω RESISTOR ±5% 1/2W. (2 REQ.)
63-1733		56Ω RESISTOR ±10% 1/2W.
63-1735		68Ω RESISTOR ±5% 1/2W. (2 REQ.)
63-1747		120Ω RESISTOR ±10% 1/2W.
63-1750		150Ω RESISTOR ±10% 1/2W.
63-1770		470Ω RESISTOR ±5% 1/2W.
63-1782		820Ω RESISTOR ±10% 1/2W.
63-1785		1KΩ RESISTOR ±10% 1/2W. (2 REQ.)
63-1792		1500Ω RESISTOR ±10% 1/2W.
63-1799		2200Ω RESISTOR ±10% 1/2W.
63-1819		6800Ω RESISTOR 5% 1/2W
63-1834		15KΩ RESISTOR ±10% 1/2W.
63-1848		33KΩ RESISTOR ±10% 1/2W.
63-1855		47KΩ RESISTOR ±10% 1/2W.
63-1926		2.2MEGΩ REISITOR 20% 1/2W
63-4243		24KΩ RESISTOR ±5% 1/4W.
63-4254		47KΩ RESISTOR ±5% 1/4W.
63-4532		5.6Ω RESISTOR ±5% 1/2W.
63-10235		1Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-24		10Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-28		15Ω FILM RESISTOR ±5% 1/4W.
63-10235-30		18Ω FILM RESISTOR ±5% 1/4W.
63-10235-40		47Ω FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10235-48		100Ω FILM RESISTOR ±5% 1/4W. (5 REQ.)
63-10235-54		180Ω FILM RESISTOR ±5% 1/4W.
63-10235-56		220Ω FILM RESISTOR ±5% 1/4W.
63-10235-58		270Ω FILM RESISTOR ±5% 1/4W. (5 REQ.)
63-10235-60		330Ω FILM RESISTOR ±5% 1/4W.
63-10235-68		680Ω FILM RESISTOR ±5% 1/4W.
63-10235-70		820Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-72		1KΩ FILM RESISTOR ±5% 1/4W. (4 REQ.)
63-10235-74		1200Ω FILM RESISTOR ±5% 1/4W. (4 REQ.)
63-10235-76		1500Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-80		2200Ω FILM RESISTOR ±5% 1/4W.
63-10235-82		2700Ω FILM RESISTOR ±5% 1/4W.
63-10235-83		3KΩ FILM RESISTOR ±5% 1/4W.
63-10235-84		3300Ω FILM RESISTOR ±5% 1/4W. (6 REQ.)
63-10235-86		3900Ω FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10235-89		5100Ω FILM RESISTOR ±5% 1/4W.
63-10235-90		5600Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-91		6200Ω FILM RESISTOR ±5% 1/4W.
63-10235-92		6800Ω FILM RESISTOR ±5% 1/4W. (5 REQ.)
63-10235-93		7500Ω FILM RESISTOR ±5% 1/4W.
63-10235-94		8200Ω FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10235-96		10KΩ FILM RESISTOR ±5% 1/4W.
63-10236		15KΩ FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10236-02		18KΩ FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10236-03		20KΩ FILM RESISTOR ±5% 1/4W.
63-10236-04		22KΩ FILM RESISTOR ±5% 1/4W.
63-10236-06		27KΩ FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10236-08		39KΩ FILM RESISTOR ±5% 1/4W. (4 REQ.)
63-10236-10		39KΩ FILM RESISTOR ±5% 1/4W.
63-10236-12		47KΩ FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10236-16		68KΩ FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10236-18		82KΩ FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10236-20		100K% FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10236-24		150KΩ FILM RESISTOR ±5% 1/4W. (3 REQ.)
63-10236-25		160KΩ FILM RESISTOR ±5% 1/4W.
63-10236-30		270KΩ FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10236-35		430KΩ FILM RESISTOR ±5% 1/4W.
63-10236-38		560KΩ FILM RESISTOR ±5% 1/4W.
63-10236-42		820K FILM RESISTOR ±5% 1/4W.
63-10236-43		910KΩ FILM RESISTOR 5% 1/4W
63-10236-44		1MEGΩ FILM RESISTOR ±5% 1/4W. (2 REQ.)
63-10243-26		12Ω FILM RESISTOR 5% 1/2W
63-10243-40		47Ω FILM RESISTOR 5% 1/2W
63-10243-42		56Ω FILM RESISTOR 5% 1/2W
63-10243-52		50Ω FILM RESISTOR 5% 1/2W
63-10243-58		270Ω FILM RESISTOR 5% 1/2W
63-10243-60		330Ω FILM RESISTOR ±5% 1/2W.
63-10244-20		100KΩ FILM RESISTOR ±5% 1/2W.
63-10347-96		10KΩ FILM RESISTOR ±5% 1W.
63-10371-96		10KΩ FILM RESISTOR ±5% 2W.
63-10449-65		51Ω WIRE-WOUND RESISTOR ±5% 7W.
63-10449-70		82Ω WIREWOUND RESISTOR 5% 7W
63-10565		1Ω FILM RESISTOR ±5% 1/2W. (FAIL SAFE)
63-10565-20		6.8Ω FILM RESISTOR ±5% 1/2W. (FAILSAFE)
63-10565-28		15Ω FILM RESISTOR ±5% 1/2W. (2 REQ. FAILSAFE)
63-10565-30		18Ω FILM RESISTOR ±5% 1/2W. (3 REQ. FAILSAFE)
63-10565-38		39Ω FILM RESISTOR ±5% 1/2W. (FAILSAFE)
63-10565-46		82Ω FILM RESISTOR ±5% 1/2W. (FAILSAFE)
86-81		SHAKEPROOF TERMINAL (PART OF A-8419-02)
86-596-02		INSERT PIN TERMINAL (32 REQ.)
86-746		TERMINAL (3 P/O A-8419-02 CONTACT ASSEMBLY)
86-818		MALE TERMINAL (2 USED ON 11-350-01 LINE CORD)

BLACK & WHITE TV CHASSIS 19MB2X

PART NO	REF CODE	DESCRIPTION
95-2909-05		RCF TUNABLE TRANSFORMER (T101)
95-3247		RCF TUNABLE TRANSFORMER (T1001)
95-3386		RCF TUNABLE TRANSFORMER (T501)
103-23-01		GERMANIUM DIODE, HIGH FREQUENCY
103-142-01		DIODE, LOW VOLTAGE (23 REQ.)
103-261-01		DIODE, LOW VOLTAGE
103-261-02		DIODE, LOW VOLTAGE
103-261-04		DIODE, LOW VOLTAGE (6 REQ.)
103-279-16		ZENER DIODE 8.2V 1/2W
103-279-27		ZENER DIODE 8V 1/2W (CR1001)
103-284		DIODE, LOW VOLTAGE
103-287		DIODE, HIGH VOLTAGE
103-295-02		DIODE, LOW VOLTAGE (CR802)
103-301-16		ZENER DIODE 2V 1W (CR705)
105-148-01		RESISTIVE NETWORK, THICK FILM
126-1742-01		TRANSISTOR HEAT SINK, CLIP TYPE
126-1841		IF SHIELD
126-1842		IF SHIELD (TOP)
126-1843		IF SHIELD (BOTTOM)
126-1869		RESISTOR HEAT SINK
126-1870		HORIZ OUTPUT TRANSISTOR HEAT SINK
126-1883		TRANSISTOR HEAT SINK (1 EA. REQ. Q607, Q608, Q1004)
149-379		FERRITE SLEEVE (6 REQ.)
149-417		FERRITE SLEEVE CORE (5 REQ.)
149-417-01		FERRITE BEAD CORE
149-418		FERRITE SLEEVE CORE
194-561		SPACER INSULATING STRIP
194-574		COIL CAPTIVATING INSULATING STRIP
205-303		HEAT SINK COMPOUND
212-76		DIODE, LOW VOLTAGE
		HARDWARE
54-355		6-32X0.093X0.250AF HEX MACHINE NUT WITH WASHER, CADMIUM (2 REQ.)
112-1716		6-32X0.312 CADMIUM MACHINE SCREW, RECESSED CROSS-CUT PAN HEAD (2 REQ)

TV-61

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